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THE
QUARTERLY JOURNAL
OF
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FEBRUARY, 1923

SOME ASPECTS OF PROTECTION
FURTHER CONSIDERED

SUMMARY

Persistence of protectionist sentiment and its causes. — The principle of comparative advantage not an infallible guide in the economics of commercial policy, 203. — Effect of increasing and decreasing unit costs, 205. — Mathematical demonstration, 207. — Suggested tests for the modification of the principle of comparative advantage, 210. — Analysis of the "unit of productive power," 212. — Effect of a change in the composition of this unit, 213. — Protection as an agent in bringing about such a change, 216. — Extension of the infant-industry argument to cover infant finance, 218. — Past and future relation of protection and prosperity, 225.

THE lack of correspondence of the theory of international trade with the commercial policy of most nations has provoked frequent comment. In noting the resurgence of protection since 1860, M. Gide suggests that, in spite of all that has been written on the subject, the matter has not yet been completely explored. "There must have been some general causes at the root of this sudden irresistible and spreading epidemic of protection," he says, "but it is not very easy to discover them." And again, "the reaction in favor of Protection is not so marked in theory as it is in trade policy . . . the greater number of economists have remained faithful to the Free Trade doctrines."¹ One may doubt

1. Gide, *Political Economy*, 3d ed., p. 349.

whether, in explanation of this phenomenon, it is necessary to look for any more recondite "general causes" than national prejudices and jealousies, private interest coupled with public indifference, and the mental inertia which, by precluding the consideration of other than obvious effects, offers an enormous tactical advantage to the advocates of protection. But accepting M. Gide's view that these are not fully adequate, the purpose of the present article is to suggest some such "general causes" as Gide seeks, causes which have perhaps played their part in the new protection and which hitherto have been somewhat obscure. The sequel will endeavor to show: (1) that the principle of comparative advantage is no infallible criterion of the best commercial policy, even from a purely economic point of view; and (2) that protection to manufactures may advantageously be continued much longer than would seem adequate to cover the infant stage, whether or not the industry could maintain itself without such aid.

Economists have perhaps been too ready to attribute protection to sheer illusion, to a Neo-Mercantilism which has less justification than its original, much as that original is divided. The cult of protection is not to be explained altogether on the basis of illusion. If all its roots lay in error, sooner or later its vogue might confidently be expected to languish. But year by year it seems to grow stronger, winning fresh adherents and strengthening its hold upon its former devotees. This penchant for protection suggests more solid origins than the common specious pleas disclose, and in fact, when all these flimsy supports have been swept away, some economic props remain.

By far the most important cause for the spread of protective measures has been the desire to encourage manufactures. The plain citizen of almost every land

idealizes, nay almost idolizes, the industrial state. A smiling and peaceful Arcadian land as a *national* ideal has no longer any charms — the fascination of the machine has changed all that — and men want their national skies black with the smoke of industry and clanging with its noises. This preference may hark back to the instinct for contrivance, it may be a search for security, it may have roots which I shall presently indicate, in great part no doubt it has no profounder basis than a crude and shallow Mercantilism. At all events it is a preference and a force and, in view of this preference, manufacturing might almost be considered an economic good in itself. With scarcely an exception non-industrial states display a strong desire to develop manufacturing within their borders, while there is nothing like the same ardor with regard to the development of agriculture. Agriculture has indeed at times been given protection in an industrialized state such as Germany, but only as a sop, and against the most strenuous opposition. No state has shown any desire to move from an industrial toward an agricultural régime, while the decline of agriculture in favor of manufacturing industry is accepted with equanimity. This widespread preference for manufactures is the secret of the "irresistible and spreading epidemic of protection," for it is for the development of manufactures that protection has usually been invoked. And so where protection is unnecessary or ineffective to promote manufacturing, as in England, it is not popular, while its popularity remains unshaken wherever manufacturing is likely to be advanced as a result of its use.

But if the preference for manufactures is the secret of protection, what is the secret of the preference for manufactures? The typical economist scoffs at any preference for manufactures *per se*. Relying on deductive logic he

comes to conclusions which run foul of empirically obtained lay opinions to the effect that manufactures, as such, make for prosperity. These latter opinions are on this point perhaps no further from the truth than his own, which are apt to issue out of narrow and questionable premises.

For it is the premises of the free trader, not his conclusions, that have always been and always must be the object of any effective attack. It was through this hole in the free-trade armor that Hamilton and List made their most telling thrusts, but the blows of neither were as shrewd as they might have been. List's ideas of an "educative" tariff and of the development of a nation through various stages to what he regarded as its apogee, the agricultural-manufacturing-commercial phase, are fundamentally sound, and it can plausibly be maintained that the stimulus that a tariff may give in this development may well be worth a present loss, provided it sets free latent productive powers. Manufactures probably promote skill quite as much as skill promotes manufactures. But List's error (a strange one for him to make) lay in conceding too much to his opponents. For he thought of "nurturing" protection as a temporary policy merely, a temporary loss which could be compensated only by the development of the protected industry to a point where it could stand without support. If the industry could not eventually do this, List would have regarded the protection as unwisely granted, and as well that it should be withdrawn. He was in fact a free trader in principle, admitting protection as a temporary expedient only. It was on this point that he failed to make the most of his position. For, as I shall now endeavor to show, it may be to a country's economic advantage to protect an industry which could not grow up or survive without protection and which never will be

able to survive without it, an industry which has no comparative advantage when the protective duty is first levied nor ever attains one under it.

To make this clear let us assume two countries, A and B, under three distinct sets of conditions. In the first set A and B are just opening up a trade which has hitherto not existed. In the second set the trade has developed greatly, free trade between the two has obtained, and each country has specialized along lines of comparative advantage. In the third set of conditions, which are contemporaneous with the second, protective tariffs are supposed to have been levied from the beginning by B against A; A's products have been excluded, and each country has produced at home its home consumption. The trade which was being opened up under the first set of conditions has been stifled. Let us assume further that, instead of production being at constant cost, as the classical theory of international trade supposed, country A has under the first set of conditions, and retains throughout, a comparative advantage in the production of a commodity subject in the prevailing conjuncture to decreasing unit cost, — watches, let us say, — while country B's comparative advantage lies in the production of a commodity subject in the prevailing conjuncture to increasing unit cost, say wheat. This means, of course, that the effort cost per unit of A's product will decline *solely* by reason of an extension of output; while the effort cost per unit of B's product will increase for the same reason.² Assume further that the

2. These are aspects of the law of proportionality. The assumed situation is such that an increased output of watches makes possible more efficient combination of agents, while an increased output of wheat renders inevitable a less efficient combination. In the case of the commodity produced under conditions of decreasing unit cost, watches, an extension of total output may be achieved by simply increasing the number of individual producing organisations without any increase in the size of the individual organisation. If this is the case, the only economies obtained will be external economies, which come slowly and appear on a considerable scale only if there be a very great increase in output. If, on the other hand, some of the existing plants share in the ex-

total sales of the commodity in which A has a comparative advantage, viz., watches, are likely to grow, while those of the commodity in which the comparative advantage lies with B, viz., wheat, will tend to remain constant. Then the three sets of conditions referred to above may be outlined as follows:

CASE I

In Country A

10 days' labor produces 40 units wheat.

10 days' labor produces 40 watches.

In Country B

10 days' labor produces 40 units wheat.

10 days' labor produces 30 watches.

Country A has a comparative advantage in watches, country B in wheat. Trade is possible on any terms between the limits 40 wheat = 30 @ 40 watches. Suppose it is opened up and equilibrium established on the basis of 40 wheat for 35 watches. Then country A, for 20 days' labor devoted to the production of watches (= 80 watches) can, by the exchange with B of 35 watches for 40 wheat, obtain 40 wheat plus 45 (80 - 35) watches, while country B for 20 days' labor devoted to the production of wheat (= 80 wheat) can, by the same exchange, obtain 40 (80 - 40) wheat plus 35 watches. Both

*Will the entire
output exch
at this ratio?*

tension of output, and the tendency toward a larger-scale producing organisation is increased thereby, internal economies will be obtained, and the unit cost may be diminished very considerably. The reasoning in the text simply assumes that a decreasing unit cost is obtained by an expansion of the production of watches; whether the cause of it be external or internal economies is immaterial to the theory, tho it would, of course, affect the degree of its applicability. Conversely, an expansion of the production of wheat is assumed to result in an increasing unit cost, the causes being immaterial to the present theory. As a matter of probability, the more effective combination of agents in the production of watches will be due to the increased technical efficiency which the expanded production makes possible, while in the production of wheat the less effective combination of agents will be due to the relative scarcity of good agricultural land.

3. This and all similar expressions which follow are not to be construed as factored expressions. The figures in brackets are intended to show merely how the expression immediately preceding the bracket is obtained. Thus the 45 watches are the remainder of A's total product of 80 watches after 35 watches have been exchanged with B for 40 units of wheat.

countries get 5 more watches than they could get without the international exchange of products, for without such exchange A could get for 20 days' labor equally divided between wheat and watches 40 wheat plus 40 watches instead of 40 wheat plus 45 watches, and B in a similar way would get 40 wheat plus 30 watches instead of 40 wheat plus 35 watches.

It should be noted that in the case here assumed the international exchange of products is just at its inception and so will be on a small scale. For the most part, both countries are producing their own consumption of both commodities. Let us go now to the conditions of Case II. Trade has been kept free and has developed so that both countries specialize in the lines in which they have a comparative advantage. By the extension of its output of watches (assumed to be produced at decreasing cost) A gets a lower cost per unit, while its withdrawal from wheat production (assumed to be produced at increasing cost) would give it a lower cost per unit of wheat also, if it should still produce any as an alternative to watches. B, on the other hand, by the extension of its output of wheat raises its cost per unit of this product, while its withdrawal from watch production gives it a higher cost per unit for watches also if it should still produce any as an alternative to wheat. Let the conditions be represented thus:

CASE II (a)

In Country A

10 days' labor produces 45 units wheat.

10 days' labor produces 45 watches.

In Country B

10 days' labor produces 35 units wheat.

10 days' labor produces 20 watches.

B still has a comparative advantage in the production of wheat and may be assumed to have had it throughout

the period of transition from Case I. Specialization in wheat will be advantageous for B as things are at the moment, and will have been advantageous, it may be assumed, at any given moment throughout the period of transition. Trade is now possible on any terms between $35 \text{ wheat} = 20 @ 35 \text{ watches}$, or, what is the same thing, $40 \text{ wheat} = 22\frac{1}{2} @ 40 \text{ watches}$. Let us assume for the moment no change from Case I in the terms of exchange that is that 40 units of wheat exchange for 35 watches (tho in view of our premises and the changed conditions this is a ratio unduly favorable to B). Then country A for 20 days' labor devoted to the production of watches (= 90 watches) can, by exchanging 35 watches for 40 wheat, obtain *40 wheat plus 55 (90 - 35) watches*; while country B, for 20 days' labor devoted to the production of wheat (= 70 wheat) can by this same exchange obtain *30 (70 - 40) wheat plus 35 watches*. Under these conditions both countries will again benefit by the trade, since without it A for 20 days' labor equally divided between wheat and watches would get but 45 wheat and 45 watches as compared with 40 wheat and 55 watches obtained through trade; while without trade B would get 35 wheat plus 20 watches as compared with 30 wheat plus 35 watches obtained *with* trade. The result of the trading is to give A, ten, and B, fifteen more watches than they would have without trade, while both countries lose 5 units of wheat. But 5 units of wheat are worth not more than 5 watches in either country, so the result for both is a net gain.

Compare, however, the situation of the two countries under Case I, on the assumption that no trade had ever been opened up, with that under Case II with trade free. It is as follows:

IN COUNTRY A

Case I

20 days' labor *without* trade yields 40 wheat plus 40 watches.

Case II

20 days' labor *with* trade yields 40 wheat plus 55 watches.

Here under Case II with trade A makes a clear gain of 15 watches as compared with its position under Case I without trade.

IN COUNTRY B

Case I

20 days' labor *without* trade yields 40 wheat plus 30 watches.

Case II

20 days' labor *with* trade yields 30 wheat plus 35 watches.

Here under Case II with trade free B gets 10 less wheat and 5 more watches than under Case I with no trade. This is a net *loss*, since 10 units of wheat are worth more than 5 watches in either country under either set of conditions. The specialization along lines of comparative advantage has been disadvantageous to B.² At any given moment of the transition from Case I to Case II it will pay B to specialize in wheat, but the final result of the specialization is to bring about a situation in which the citizens of B get less reward for their efforts than if they had never carried on international trade at all.

To make this conclusion invulnerable, it is necessary to consider the nature of the figures given in the illustrations. If these figures be figures representing *marginal* costs, the conclusion that country B will lose by specialization is not inevitable. For the extension of the production of wheat will mean not that the cost of every unit of the product rises but merely of that part of the whole product which was not grown previous to the increase in output. All rents will be raised by the lowering

for the whole product and not for the new increment merely, and all producers must have approximately equal costs or be put out of business by their competitors. For a given fluctuation in the cost of their respective marginal units, the total cost of the production of watches will fall to a greater degree than the total cost of the production of wheat will rise, since in the former case the decreased cost applies to *all* the units produced, while in the latter the increased cost applies only to the new increments and only to the full extent to the last of them. There is, of course, no reason to expect that the marginal costs in the two cases will fluctuate to the same degree. Whether the total cost and average unit cost of the commodity produced under conditions of increasing cost will mount more or less rapidly than the total and unit cost of the commodity produced under conditions of decreasing cost falls, depends upon the respective nature of those conditions. An extension of the output of wheat may mean a rapidly or slowly rising marginal and average unit cost according to the conditions in country B, and an extension of the output of watches may mean a rapidly or slowly declining unit cost according to the changes that take place in A consequent upon such increased output. In what might be considered the more normal case, the unit cost of the commodity produced at increasing cost will rise with less rapidity than the unit cost of the commodity produced at decreasing cost will fall.

But even if we adopt the case most favorable to B and proceed according to the method of limits to suppose that the increased output of wheat is produced at a unit cost no greater than prevailed before the production was expanded, it may well happen that B will lose by free trade. To make this evident let us suppose the following conditions:

CASE II (b) (marginal units)

In Country A

10 days' labor produces 45 units wheat.

10 days' labor produces 45 watches.

In Country B

10 days' labor produces 40 units wheat.

10 days' labor produces 20 watches.

Trade may be carried on advantageously on any terms between 40 wheat = 20 @ 40 watches. Assume that the play of international demand brings equilibrium on the basis of 40 wheat for 28 watches. Then country B for 20 days' labor devoted to the production of wheat will by the exchange of 40 wheat for 28 watches obtain *40 (80 - 40) wheat plus 28 watches*. But if trade had never been opened up and B had never specialized on the commodity in which it had a comparative advantage, viz., wheat, it could have had *40 wheat plus 30 watches*.

It might be contended that the declining cost of production of watches and the advancing cost of production of wheat would be reflected in a shifting of the terms of exchange not against B, as the illustration above assumes, but in B's favor, and that this shifting of the terms of exchange would cause both countries to gain instead of one gaining and the other losing. But there is no reason for supposing that this would happen. It would happen only if there were perfect mobility of labor and capital between the two countries. But the lack of any such mobility is a fundamental of the theory of international trade and is, indeed, the one thing that calls for a theory of international trade distinct from the theory of domestic trade. The play of reciprocal demand which decides the terms of exchange of the commodities entering into international trade may operate to keep prices up even when the effort cost of production

falls, or to depress them when the effort cost of production rises. If, as was assumed at the outset, the sales of watches tend to increase while those of wheat tend to remain constant, the terms of exchange will move not in favor of B but, as is here supposed, against that country.

Turn now to Case III. The hypothesis is simply that protection has been given to watches in country B while the conditions of production of Case I prevailed. If the protection is fully effective, B will do no worse than hold the productiveness of Case I, which, as has already been pointed out, leaves it in a better position at the later period represented by Case II and Case III than if trade had been left free. Protection will still be necessary if B's watch manufacture is to survive, and there is no reason to suppose that it will ever be unnecessary. Nevertheless B is economically benefited by protection and may do well to keep it indefinitely. This possibility of advantageous permanent protection was not seen by Hamilton and List, no doubt because it challenges the assumption of constant cost, an assumption which in their time was probably more consonant with facts than at present. Later economists, such as Professors Sidgwick, Edgeworth, and Carver, have attacked this assumption in one way and another, but so far as the writer is aware have not brought out the foregoing implications of increasing and decreasing cost of production.

A comparison of the figures in the cases assumed so far will show that, while country B loses as a result of specialization along lines of comparative advantage, the total production of the two countries taken together increases. With the present intensity of national feeling this general advantage will make little difference to B (if we assume that it is a country *in esse*), since B would

be unlikely to adopt a policy of free trade hurtful to its own interests merely because it could be shown to give more to other countries than B itself loses. But even if we could assume that B would be so altruistic as to do this, it might not have the opportunity. For to specialize along lines of comparative advantage may result in a net loss all round. To illustrate this point take again the conditions of Case I, with the figures representing average rather than marginal product.

In Country A

10 days' labor produces 40 units wheat (on the average).
10 days' labor produces 40 watches.

In Country B

10 days' labor produces 40 units wheat (on the average).
10 days' labor produces 30 watches.

Assume no trade. Then the total product of 20 days' labor in both countries will be: 80 (40 plus 40) wheat plus 70 (40 plus 30) watches. Now suppose conditions after trade has been opened up and specialization along lines of comparative advantage has taken place to be (solely as a result of increased production in the lines of respective comparative advantage) as follows:

In Country A

10 days' labor produces 45 units wheat (on the average).
10 days' labor produces 42 watches.

In Country B

10 days' labor produces 30 units wheat (on the average).
10 days' labor produces 25 watches.

Then the total production of 20 days' labor in both countries with trade will be: 60 (2×30) wheat plus 84 (2×42) watches. Comparing this with the production of a similar amount of labor without trade under Case I, 80 wheat plus 70 watches, it appears that under Case II with the specialization which free trade would tend to bring about there would be obtained 20 less

wheat and 14 more watches than under Case I without trade. But this is a net loss, since 20 wheat are worth more than 14 watches in either country under either set of conditions.

These figures illustrate the loss that List may have had in mind when he insisted upon the advantage of the development of productive forces. But neither List nor his followers have shown that this was anything more than an emotion, tho Patten has brought applicable instances of the sort in support of his ingenuities in defense of protection.

The upshot of the considerations advanced above is that comparative advantage is by no means an infallible guide to the maximum return in the long run to the productive effort of a nation. A rational, forward-looking policy might deliberately reject development along lines of comparative advantage. Nor is *absolute* advantage at any given moment a reliable test, Professor Patten to the contrary notwithstanding. Taking comparative advantage as a basis, modifications of that principle may be necessary according to the answers to these two questions (1) will the development of production along lines of comparative advantage bring about through specialization an absolutely less productive régime? (2) what is the trend of world demand and supply for the actual or potential products of the given nation? The first of these considerations affects the volume of a nation's product, the second, the terms on which it exchanges its products for the products of other countries. It may well be disadvantageous for a nation to concentrate in production of commodities of increasing cost despite a comparative advantage in those lines; it will the more probably be disadvantageous to do so if the world demand for goods produced at decreasing cost is growing in volume more rapidly than that for

goods produced at increasing cost, while at the same time competition in the supply of the former grows relatively less intense as compared with competition in the supply of the latter. For in this case the operation of the law of reciprocal demand will throw the terms of the exchange of commodities more and more to the disadvantage of the country producing the goods of increasing cost.

Since goods exchange in international trade on the principle of reciprocal demand, the tendency actually is for competition to restrict the gains obtained in the production and exchange of increasing-cost goods, and to enlarge the gains in the production and exchange of decreasing-cost goods. For in the production of increasing-cost goods competition develops apace, as every extension of production through specialization brings in (as a result of rising costs) hitherto impossible outside competition; while in the production of decreasing-cost goods, competition becomes more and more ineffective as costs in the specializing country fall. The quickening of competition in the marketing of increasing-cost goods and its decline in that of commodities produced at decreasing cost operates to lessen the spread between the effort cost of the former class of goods and the commodity returns received for them, while it tends to augment that spread in the case of the latter class. Conditions of supply being irrelevant in the determination of the *terms* of exchange, if we assume for the moment that the relation between the demand for the commodities of increasing and those of decreasing cost remains constant, then the country producing commodities at decreasing cost will secure a growing differential between cost and return, while the country producing commodities at increasing cost will find its gain declining. Real wages will rise in the former country as a

result of the relatively effective application of its labor, for it is a commonplace of the theory of international trade that the standard for wages in general is set in the exporting industries,⁴ and depends on their effectiveness; they will fall in the latter country for the opposite reason. This movement of wages will prevent any tendency toward a readjustment of the terms of exchange of the two types of commodities in favor of the increasing-cost goods; it is in fact but a reaffirmation of the principle that cost of production is not effective in setting those terms.

The principle just laid down may go far to explain why regions of slender natural resources devoted to manufactures often surpass in prosperity regions of much greater natural resources where extractive industry prevails, tho no great difference exists in the native ability of their respective populations. One may instance the almost constant complaint of the West in the United States during the period when its effort was almost solely devoted to extractive industry, over its "exploitation" by the East, particularly New England. This is a case strictly analogous to international exchange under free-trade conditions, since mobility of the factors of production was considerably restricted.

So far the situation has been observed from the supply side of production only, the relation between the demand for the two types of commodities being assumed to be constant. If now demand for the commodities produced at decreasing cost grows in volume relatively to that of products produced at increasing cost, the terms of exchange will move still more in favor of the producers of decreasing-cost commodities, and it should be borne in mind that the only check on this

4. Strictly, it is the standard for *money* wages that is set in the exporting industries; but increased money wages are here due to increased effectiveness in production and to more favorable terms of exchange, and so will mean increased real wages as well.

movement is that set by the possibility of the home production of the imported decreasing-cost commodities by the country which is specializing in the commodities produced at increasing cost — a possibility which such a country grows ever less competent to realize, since its abandonment of the production of the decreasing-cost commodities results in higher unit cost for such an amount of these goods as it may continue to produce. The movement of the terms of exchange in favor of the producers of the increasing-cost commodities is, on the contrary, quickly checked by the increasing competence of the country which is specializing in goods of decreasing cost to meet the competition of the other in the production of the increasing-cost goods, since its abandonment of the production of increasing-cost commodities results in lower unit costs for such an amount of these goods as it may continue to produce.

cost

demand
Departing now from deduction let us look into actual conditions. In the main the commodities produced at lower unit cost on an increase of output are manufactured goods, while those produced at a higher unit cost are the commodities of extractive industry. England was the first country to obtain great advantages of decreasing cost. The extension of free trade tended to enlarge those advantages for England and to render her prosperous beyond any other country in which conditions were at all comparable. For England's increasing concentration upon manufactured goods was constantly tending to lower her effort cost of production, while the increasing specialization which free trade operates to bring about was tending to raise the effort cost of production of those commodities (largely extractive) which England took in exchange for her manufactures. The play of reciprocal demand, which alone sets the terms of exchange of commodities in international trade, was

probably also operating to England's advantage, since the secular trend of demand must have been increasing for manufactured goods relatively to the commodities of extractive industry, as is shown by the sheer growth of manufacturing industry since the Industrial Revolution.⁵

The spurt in England's prosperity could not be approached in old countries devoted to extractive industry, and could be matched only by new countries whose wealth of land made extractive industry highly profitable. The situation meant a quasi-monopoly position for England in her production while the countries producing extractive commodities were being subjected to increasingly severe competition. In this situation a tariff to build up industries of decreasing unit cost in these countries might well be advantageous to them, tho their comparative advantages were permanently to remain in industries of increasing unit cost. In these premises a scientific commercial policy for such countries would, on purely economic grounds, modify the principle of comparative advantage in anticipation of the trend of world demand and of the conditions of supply, and this is approximately what the bulk of tariff policies, however blindly adopted, has actually done. They were adopted, in part at least perhaps, because empirically obtained opinions pointed to their efficacy

5. This statement may perhaps be questioned. Professor Taussig in his *Free Trade, the Tariff and Reciprocity* (page 87) seems to hold the contrary view, when he attributes the relative prosperity of the United States to the fact that our exports have in the past been agricultural products largely, for which the demand has been, as he says, stable and steadily increasing in volume. The conflict is, I think, superficial only. The volume of the total demand for manufactured goods must have increased at least as rapidly. Elasticity of demand for manufactured goods is undoubtedly greater and so there would be less *stability* in the demand; but this elasticity is a prime factor in promoting a secular increase in the volume of such goods taken, and it is the secular trend which is here important. Increased demand for manufactured goods of course involves an increased demand for extractive products but it would seem that in the last century and a half the percentage of worked-up goods must constantly have been an increasing proportion of the whole. The very appearance of a great variety of new inventions is evidence of this.

to advance prosperity. The free-trade movement initiated in England in 1846 made headway outside of England for a few years only. After that it was repudiated by most old countries,⁶ and even by the new as the first exceptionally favorable conditions for the production of extractive commodities began to depart.⁷ We have seen that the opinion commonly held that manufactures mean prosperity is in some cases not without scientific foundation, and self-sufficiency may conceivably have been a justifiable policy, even on economic grounds, for the countries which adopted it.

So much for the first of the "general causes" of the epidemic of protection. There is another, which I shall now indicate. The accepted exposition of free-trade principles speaks in terms of "units of productive power," usually commuted, as in this article, to so many days' labor. But it fails to analyze the composition of those units. They are not identical in different countries but may be any combination whatever of land, labor, and capital. Suppose in country A one day's labor is equivalent in value to the use of 10 units of capital or 3 units of land, while in country B one day's labor equals in value the use of 5 units of capital or 8 units of land. The unit of productive power in the two countries will be very different things. The comparative advantage of A will lie in the production of commodities which take much capital and little land, while in B it will lie in the production of commodities which take much land and little capital. But this situation may be completely changed in B by the growth of capital relatively to the other factors. It may well be that, given the capital, the comparative advantage of country B would be in the

6. France 1871, Germany 1879, Italy 1877, Austria 1878.

7. United States 1861, Argentina 1878 onward, Canada 1879 onward, Australia 1902, Chile 1916.

production of the very things in which country A now has that comparative advantage. B's genius and resources may lie in that direction, and remain dormant because the scarcity of capital renders it uneconomic to develop them. (China is perhaps an instance in point, tho of course many other factors enter.) In such a case a country's genius and prosperity may be thwarted by a lack of capital and the all-important question is how to obtain capital most quickly.

There are, of course, the two alternatives of borrowing and saving. As to borrowing. The lending of capital and the price of its use are determined to a very considerable degree by propinquity, physical, and spiritual. If this were not so, the rate of interest would be the same the world over for investments of similar character. But it is not the same the world over (tho its fluctuations probably grow less), and its variations run in large measure according to the remoteness in space or acquaintance or good-will from the source of supply. Here again it is this factor of immobility that differentiates international from domestic trade and has given rise to a separate theory concerning it. Create a home supply of capital and you change conditions fundamentally.

Now as to saving.⁸ The confirmed free trader will contend that the direction of industry along lines of immediate comparative advantage will yield the greatest return and so promote most successfully the desired accumulation of capital and the quickest shift to the industries which will be the more productive in the long run. But this argument assumes that, because under free trade more capital *could* be saved, more *will* be

8. The argument developed in this and succeeding paragraphs has been in large measure anticipated by A. S. Johnson in an article in the *Political Science Quarterly*, vol. xxiii, No. 2, p. 220. The present article had been completed when this fact was brought to the writer's attention.

saved. The assumption is a dubious one for two reasons, both of which turn on the fact that not only the amount but the distribution of wealth is important in the accumulation of capital. Protection in the circumstances here assumed will affect the distribution of wealth in two significant ways: (a) it will tend to concentrate it; (b) it will concentrate it in the hands of people who are well-nigh inevitable savers. For let it be remembered that the assumption is that the long-run interests of the country require a shifting to the industries which are relatively large users of capital, that is, to the manufacturing industries in the main. Now, tho no satisfactory statistics exist, so far as the writer is aware, to show clearly the effect of manufacturing industry on the distribution of wealth, we know that England, the typical manufacturing country, shows the greatest concentration of wealth⁹ and agricultural Australasia, perhaps, the least. In our own country the growth of huge fortunes seems to have been tied up in large measure with the growth of manufacturing, and the concentration of wealth seems to be increasing with our gradual transition toward an Industriestaat.¹ I shall presently adduce deductive reasons for this phenomenon, but, taking it for the moment to be a fact, then effective protection to manufactures would act as a force striking the plain of wealth distribution, and crumpling it up into hills and valleys. There is no doubt that the great bulk of saving is done by wealthy people² and that the unequal distribution of wealth is a prime factor in the accumulation of capital. (It is interesting to note in this connection that the export of capital comes from countries in which manufactures are

9. King, *Wealth and Income of the People of the United States*, p. 97.

1. *Ibid.*, p. 74.

2. Taussig, *Principles of Economics*, vol. ii, p. 42.

highly developed and its import to those in which it is not.) It seems to be true that where income is evenly distributed the standard of living rises to the point where a very high proportion of the total national income is consumed immediately, to the ultimate detriment of the whole country. As Professor Friday says, quoting Keynes, "the immense accumulations of capital, which to the great benefit of mankind were built up during the half century before the war (1914), could never have come about in a society where wealth was divided equitably"³ (that is, more equally than at present).

The chief reason for the unequal distribution of wealth which attends a manufacturing régime, as well as its concentration in the hands of men who are almost *forced* to save, is again the fact that an extension of output in manufacture is likely to be accompanied by a falling unit cost. As Professor Friday points out in the work already cited enormous additions to capital are made in the reinvestment of earnings in plant extensions.⁴ Whether by reinvestment of profits or otherwise, this saving through the force of competition is practically compulsory in an industry subject to increasing returns, for the alternative to expansion is bankruptcy. On the other hand in the extractive industries, where an extension of output is likely to be accompanied by a rising unit cost, this stimulus to expansion and increase of equipment is lacking. The form that industry takes is vital in the accumulation of capital. The processes of extractive industry are relatively direct, there is a comparatively slight need for great investments in fixed capital. The processes of manufacture on the other hand are indirect, and the

3. Friday, *Profits, Wages, and Prices* (1920), p. 66.

4. *Ibid.*, chap. iv.

extension of manufactures, even at the cost of extractive industry, is thus itself inevitably an accumulation of capital. The potential savers, the rich men, in a state given over to extractive industries, are landlords. But landlords are not good savers; on the contrary, they are in the main a "spendthrift class." The reason for this is that there is with them but slight stimulus to saving and slight opportunity to invest profitably any savings that might be made. There is a significant passage in *The Education of Henry Adams*: "The American wasted money more recklessly than anyone ever did before, and except for the railway system the enormous wealth taken out of the ground since 1840 had disappeared (in 1892). . . . West of the Alleghenies the whole country might have been swept clean and could have been replaced in better form in one or two years."⁵ From these words it would seem that capital accumulation had been slight in the country as a whole while it was predominantly agricultural, and that the only exception was in the manufacturing East.

A considerable part of a manufacturing community is likely to be engaged in the production of producers' goods, and the self-interest of firms so engaged promotes the acquisition of capital. Every sale that they make means the formation of capital, every extension of credit that they receive from the banks based upon their anticipated output promotes capital accumulation — a condition approaching automatic saving.⁶ There is nothing like the same facility of saving in a non-manufacturing state where effort is devoted to the production of consumers' goods and saving can take place only through personal abstinence. In this latter case there

5. *Education of Henry Adams*, p. 328.

6. See Wolfe, "Savers' Surplus and the Interest Rate," *Quarterly Journal of Economics*, vol. XXXV, No. 1, p. 1 et seq.

is always competition between saving and spending, and the formation of capital involves a decision to save on the part of those who have the alternative of spending. There is no such alternative when the production of capital goods is a prevalent type of activity. The industrial and business processes themselves declare for saving, and the choice is made for capital accumulation by the nature of the industrial technique. So far as the industries indicated are concerned, it is either capital accumulation or no production at all; there is no alternative of spending open as a choice to anyone. Of course the demand for the capital goods must be present, but no one conversant with modern business methods imagines that demand is not stimulated by producers, as well as producers by demand. It is perhaps not too much to say that much of the capital found in non-industrial regions, such as farm machinery, has been created as a result of the energy and enterprise of its producers, rather than on the initiative of those who make use of it.

The promotion of manufactures by protection almost inevitably advances capital formation in yet another way. The protection which must be given to encourage men to essay untried and doubtful projects must ordinarily promise more than normal returns, and these are as a rule realized by the more effective producers. In industries of decreasing cost these producers tend to extend their operations, all the while making great gains, which they are almost certain to put back into so profitable a business. They become rich men and so save easily, they reinvest because it is a condition of success. The operation of a protective tariff would be to reduce the gains both of employers and wage earners in the naturally more advantageous industries in the conditions of the moment. It is probable that, if these are

extractive industries, this will mean diminished consumption rather than diminished capital accumulation; at least more capital is likely to be saved by the manufacturers than fails to be saved by the others. This will improve the situation all round in the long run.

The protection to infant industries argument then may perhaps be extended to an argument for the protection of infant capitalism or finance — of course a much longer process. The intimate connection of modern industry with finance may make finance and the accessibility of capital on favorable terms the factor determining comparative advantage. The growth of finance and manufacturing industry are interdependent. The latest stage of economic development is not List's final agricultural-manufacturing-commercial stage, but an agricultural-manufacturing-commercial-financial stage. Perhaps no state can with advantage permanently depend on another for its supply of capital, not only because it may be exploited thereby, but because owing to difficulties of mobility the supply is almost sure to be inadequate to the development that would be economic were capital more plentiful. There may be a considerable range of industries which would be competent industries if capital were more abundant but are in the present subordinate to industries which use relatively little capital. The immediate effect of protection to manufactures may be to increase the demand for capital and so raise its price, making these industries still less able to compete without protection than they had been before, and this incapacity may continue for a long period as new manufacturing industries are thus encouraged. The gradual gain which may be expected in the supply of capital in its race with demand may serve, however, to realize the real genius of a

people which had hitherto been unable to express itself for lack of the necessary means. In this case the protective measures would have justified themselves even tho they are necessary for a much longer time than would ordinarily seem sufficient to cover the infant stage.

It is difficult to assess the weight of the considerations advanced in this paper. They may be purely academic. It is certain that they have not been in the minds of legislators of protection. Have they been of any importance in the wide diffusion of the idea that protection makes or preserves prosperity? Has the belief that actual experience has shown protection to be good any roots in them? France, Germany, and the United States became powerful and prosperous, accumulators and lenders of wealth, along with industrialism and persistent protection — protection against England mainly, England which had the start, the comparative advantage in industries which show a strong tendency toward a lower unit cost, the rapidly accumulating capital. There can be no question that much of this development would have taken place in any event; but on the other hand protection has undoubtedly played its part, perhaps a truly economic part.

This paper has been kind to the protectionists. It may provide support for the comforting belief that the United States in its long-continued protective policy has builded better than it knew. But even assuming that all the economic advantages of protection which it indicates as possibilities have actually been realized, those possibilities are now a thing of the past. Without going into the far-reaching considerations of the most advantageous distribution of wealth from the economic point of view, or of an indefinite postponement of immediate consumption for the sake of greater productive

powers and a larger consumption in a future whose margin fades forever as we move, it is clear that now, when our export of manufactured goods has reached predominant proportions, a pervasive system of protection is no longer effective in these industries except to injure them by curtailing exports *pari passu* with the restriction of imports and by increasing cost of production in the manner made plain by the classical economists. Pervasive protection cannot now advance the interest of decreasing-cost industries as against those of increasing-cost; indeed the loss of capital in Europe consequent upon the war and our own rapid accumulation of it in the last few decades may have caused a very considerable reversal of the lines of comparative advantage which prevailed in the last century, so that *our* comparative advantage may now tend toward manufactures. In so far as there is any "need" for the protection now advocated for agriculture in this country this must be the explanation. Our present situation as a lending country shows that the stage of infant capitalism has been passed, that so far as the supply of capital is an important element in the production of any given commodity we are in a most favorable position. The interests of finance and manufacturing industry are still tied together, but they lie in the direction of freer trade. The extension of manufacturing equipment to meet the war demand has created a situation in which the productive capacity of our manufactures exceeds the proportion of those manufactures which our home population cares to take, and we cannot shift to the lines in which demand is proportionately great without the loss of much capital already irrevocably fixed. A foreign outlet as large as possible is highly desirable. The tendency of all decreasing-cost industries is of course to exceed the demands of the home market, owing to the advantages

derived from increasing output, and the huge scale attained by our manufactures has operated to throw the comparative advantage into that field of production. We are in fact in the position to the world taken as a whole, in which England found herself about a century ago, and just as free trade was adopted there to her own undoubted advantage, we too would find it working in our favor now. As a result of the operation of the forces I have indicated in this paper the high protection which has been an historical fact in this country since 1860 has perhaps not been uneconomic in the long run, but the very factors which lend a color of validity to this opinion are now working against protection. If they were of sufficient importance in the past to counteract the advantages arising from free trade by so much do they in the present reinforce the arguments for a policy of unrestricted commerce.

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PRICES AND THE QUANTITY OF CIRCULATING MEDIUM, 1890-1921¹

SUMMARY

An attempt to find a method for forecasting price changes develops important theoretical conclusions. — The quantity theory of money furnishes a basis for an hypothesis (229), a test of which requires an index number of general price level, an index number of total circulating medium, and an index number of the normal value of $\frac{V}{T}$, 234. — The reciprocal of the latter is an index of the circulating medium necessary to maintain a constant price level, 239. — From the index number of circulating medium and the index number of the normal value of V is calculated an index number of normal price level, 000. — This index number compared with the index number of actual price level, 1890-1916, shows a good correlation with a lag apparently slightly less than one year, 242; which substantiates the original hypothesis, as applied to that period, 245. — The hypothesis, however, does not explain the price changes of 1917-20, 246. — Some related conclusions, 248. — Supplementary note, 252. — Appendix: Construction of the index number of circulating medium, 253.

I

THE present study was begun in the hope that a method might be developed for predicting changes in the general price level from current monetary statistics. It resulted in the establishment of a relation between the volume of deposits in national banks and the general price level which, on the basis of conditions as they existed from 1890 to 1916, could have been used to predict changes in the general price level with considerable accuracy one year in advance. But it resulted also in the discovery that the relation which was found to have

1. Published with the approval of the Director as Paper No. 327 of the Journal Series of the Minnesota Agricultural Experiment Station.

held for at least a quarter of a century was upset by forces which developed in 1917 and persisted for four years.

Statistics for the last few months indicate that the war-time forces have spent themselves and that we again have to deal only with familiar forces. The disturbance of the intervening years, however, leaves considerable uncertainty as to the precise value to be assigned to one of the figures which must be used in predicting price level from bank deposits. At least one or two years must elapse before an accurate value can be assigned this figure. Meanwhile it is necessary to postpone application of the results of the study to the fascinating task of price forecasting.

Several conclusions of theoretical significance have been established, however, for the sake of which it appears worth while to publish the study at the present time. The conclusions may be summarized briefly as follows: (1) Much of the doctrine of current quantity theory appears to be substantiated; (2) changes in the general price level cannot be considered a cause of changes in the volume of the circulating medium; (3) changes in the general price level are subject to control through regulation of bank deposits; (4) changes in the volume of circulating medium are not a sufficient explanation for the war-time price changes in this country.

II

The method adopted for the study involved first, the formation of an hypothesis which, if found sound, would form a basis for forecasting changes in the general price level, and second, a thoro statistical test of the hypothesis. The implications involved in the hypothesis, therefore, are of fundamental significance. They may

be indicated by following the line of reasoning which leads to the hypothesis.

The "equation of exchange," for which we are indebted to Professor Irving Fisher, may be stated, $M \times V = P \times T$,² if M be interpreted to include all the circulating medium of the country, both money in the restricted sense and bank deposits. Probably the equation of exchange should not be identified with the quantity theory of money, which may involve much more. The equation of exchange itself is not open to question. It is a truism, a mathematical identity. It states merely that the total volume of money payments ($M \times V$) made during a given time is equal to the sum of the payments made in all the transactions for which money was used ($P \times T$) during the same space of time. The two are mathematically identical. The equation of exchange is useful, however, as a starting point for the discussion of monetary problems.

It is difficult to find a concise yet complete statement of the quantity theory of money. A statement commonly found runs in effect as follows: *Other things remaining equal, the value of money varies in exact inverse proportion to variations in its quantity.* Thus stated, the quantity theory rests impregnable behind the walls of mathematical demonstrability. The equation of exchange offers a means for its conclusive proof.

But as commonly applied the quantity theory goes further. It is declared that the assumption of *caeteris paribus* is a close approximation to the facts and that consequently the theory may be extended to state that, *in actual fact, the value of money varies in close inverse proportion to variations in its quantity.* Thus stated, the quantity theory becomes truly a theory, since one may question the assumption that other things remain equal.

2. In this equation, V stands for velocity of circulation of the medium of exchange (M), P for the general price level, and T for the volume of trade.

It is from this statement of the quantity theory that we shall proceed.

Reverting to the equation of exchange, as a convenient statement of the factors involved, we have $M \times V = P \times T$. P is the reciprocal of the "value of money" of the foregoing statements of the quantity theory and will vary directly as M , provided other things remain equal. The equation of exchange gives V and T as the only "other things" to be considered. The problem is thus made definite. Do V and T remain equal?

Excellent *a priori* arguments may be presented to show that velocity of circulation should remain approximately equal over relatively short periods.³ In general, the arguments run to the effect that velocity of circulation depends chiefly upon business customs and the habits of the people. These are factors which may be expected to change only slowly if they change at all.

The contention that the physical volume of trade is relatively constant may be investigated in the light of readily available statistics as well as by *a priori* reasoning. Indices of physical production which have been computed in recent years give abundant evidence that any attempt to relate quantity of money in the United States to the general level of prices must make allowance for a progressive increase in physical volume of trade. The rapid increase in the amount of freight annually carried by the railways of the country⁴ is at least an indication of the possibility that volume of trade may be increasing even more rapidly than physical production.

There remains the possibility, however, that the increase in the volume of trade is progressing at a rate so uniform that the volume in any year in the near future

3. Cf. Irving Fisher, *The Purchasing Power of Money*, pp. 79-89.

4. Cf. *infra*, p. 241.

may be predicted with considerable accuracy. The equation of exchange, $M \times V = P \times T$, may be written $M \times \frac{V}{T} = P$. If V is relatively constant or at least changing only at a uniform rate and T is changing at a uniform rate, it follows that $\frac{V}{T}$ is changing at a uniform rate. If the rate of change of $\frac{V}{T}$ can be determined statistically, the absolute value of $\frac{V}{T}$ at any time can be determined from a knowledge of its value a year or two previously.

If $\frac{V}{T}$ can be calculated as just indicated, it becomes possible to estimate the value of P corresponding to a given value of M for any date in the past or near future. This possibility offers opportunity for checking the original assumption. If the values for P which are calculated from the equation $M \times \frac{V}{T} = P$ correspond closely with the value of P given by a reliable index number of prices, it will appear that the assumptions which form the basis for calculating $\frac{V}{T}$ are correct.

A further possibility appears. If it be true that changes in the amount of money in circulation constitute the cause of changes in prices, the price change can be estimated in advance of its occurrence. It is scarcely conceivable that changes in prices could follow instantaneously upon a change in volume of money. The assumption of a causal connection between money and prices involves the assumption that an increase (for

example) in the amount of money in circulation will result in a temporary decrease in $\frac{V}{T}$, due either to a decrease in V or an increase in T . The actual value of $\frac{V}{T}$ being thus reduced below its normal value, as determined by the habits, business custom and productive power of the population, $\frac{V}{T}$ tends to be restored to normal by an increase in P .

III

The foregoing analysis gives a basis for the hope of finding it possible to predict changes in the general price level. The data necessary are: (1) an index number of the total circulating medium of the country (M , in the sense in which it has been used in the foregoing analysis); (2) an index number of the normal value of $\frac{V}{T}$ for each date to be considered; and (3) an index number of the general price level.

Before proceeding further, the foregoing assumptions, upon which the statistical study is to be based, may be summarized in the form of an hypothesis: *The value of the circulating medium is completely determined by the quantity of the circulating medium, the velocity of circulation, and the volume of trade, the latter two of which factors tend to be constant in a static state and in actual fact tend to change at a uniform rate, any disturbance of which is soon corrected by a change in the value of the circulating medium.*

Of the three index numbers necessary for a statistical test of this hypothesis, only one, the index number of general price changes, is already available. For this

study the all-commodities index number of wholesale prices of the Bureau of Labor Statistics has been adopted.

A very satisfactory index number of the total circulating medium of the country may be computed from statistics of bank deposits. The omission of other elements of the circulating medium from the data used in computing the index number greatly simplifies the task of its computation and cannot materially affect the result, as appears from the following considerations. It is estimated by Professor Fisher ⁵ that in 1909 the business carried on with deposit credit was ten times that carried on with money (coin, notes, etc.). In other words, deposit credit did 91 per cent of the work of the circulating medium of the country. For more recent years Professor Fisher's estimates assign progressively increasing importance to deposit credit.

If money in circulation ⁶ were included in the index number of circulating medium and weighted so as to give it importance in proportion to its effectiveness in carrying on trade, it could exercise only a minor influence upon the fluctuations of the index numbers. The character of its influence may be roughly approximated. (1) Professor Fisher's figures, referred to above, indicate that the average annual increase of the index number would be slightly less, since the volume of money in circulation is increasing less rapidly than the volume of bank deposits. (2) There would be a slight seasonal fluctuation, due to the exchanging of bank deposits for money to meet the large demand for money at certain seasons, notably in the fall for the purpose of moving the crops. (3) The volume of money in circulation probably shows a fluctuation in unison with the changes

5. *The Purchasing Power of Money*, pp. 305, 306.

6. Money in bank reserves, of course, is not in circulation.

of the general price level, due to the tendency of money to flow out of circulation and into the banks whenever it is not needed, the need for it varying with changes in the general price level. None of the above fluctuations are important relative to the fluctuations in volume of bank deposits, which constitute the chief source of the short-period fluctuations in total circulating medium.⁷

On examining the statistical data available, it becomes apparent that the figures for state banks and trust companies are not sufficiently accurate for use in constructing an index number of circulating medium. The index number consequently is constructed from the data on deposits in national banks only.⁸ The results obtained are given in Tables I, II, and III.

The method for obtaining an index number of $\frac{V}{T}$ is arrived at through a transformation of the equation of exchange.

$$\text{Given, } M \times V = P \times T$$

$$\text{We have, } \frac{V}{T} = \frac{P}{M}$$

The value of $\frac{V}{T}$ for each year, therefore, is easily obtained by dividing the index number of prices by the index number of circulating medium. This method, it should be noted, gives the actual value of $\frac{V}{T}$, which may differ from the normal value.

7. Change in the amount of money in the country is at least occasionally the cause of the short-period fluctuations in the total circulating medium and is the chief cause of the large and relatively permanent changes. Changes in the total amount of money do not ordinarily affect the amount of money in circulation, however. The immediate effect is on bank reserves and subsequently upon bank deposits. Eventually a change in prices takes place which does affect the amount of money needed in actual circulation.

8. A detailed description of the method of constructing the index number is given in the Appendix.

TABLE I. INDEX NUMBER, 1890-1921

| Year | Circulating medium ¹ (1913 = 100) | Wholesale prices ² (1913 = 100) | Actual $\frac{M}{P}$ | Normal $\frac{M^3}{P}$ | Normal price level ⁴ |
|------|--|--|-------------------------|---------------------------|---------------------------------------|
| 1890 | 24.6 | 81 | .3037 | .305 | 80.7 |
| 1891 | 25.3 | 82 | .3085 | .324 | 78.2 |
| 1892 | 28.5 | 76 | .3750 | .342 | 83.3 |
| 1893 | 26.2 | 77 | .3402 | .362 | 72.3 |
| 1894 | 27.9 | 69 | .4043 | .384 | 72.7 |
| 1895 | 28.4 | 70 | .4057 | .408 | 69.9 |
| 1896 | 27.3 | 66 | .4136 | .430 | 63.6 |
| 1897 | 30.0 | 67 | .4477 | .455 | 65.9 |
| 1898 | 33.5 | 69 | .4855 | .480 | 69.8 |
| 1899 | 39.3 | 74 | .5325 | .506 | 77.7 |
| 1900 | 40.8 | 80 | .5100 | .533 | 76.5 |
| 1901 | 45.5 | 79 | .5798 | .564 | 80.7 |
| 1902 | 49.4 | 85 | .5812 | .594 | 83.1 |
| 1903 | 51.9 | 85 | .6106 | .625 | 83.0 |
| 1904 | 55.4 | 86 | .6442 | .658 | 84.2 |
| 1905 | 60.9 | 85 | .7165 | .690 | 88.2 |
| 1906 | 64.9 | 88 | .7375 | .726 | 89.4 |
| 1907 | 70.3 | 94 | .7478 | .762 | 92.2 |
| 1908 | 72.5 | 91 | .7967 | .800 | 90.6 |
| 1909 | 80.1 | 97 | .8258 | .836 | 95.8 |
| 1910 | 84.8 | 99 | .8566 | .873 | 97.1 |
| 1911 | 89.8 | 95 | .9453 | .914 | 98.2 |
| 1912 | 96.8 | 101 | .9585 | .955 | 101.4 |
| 1913 | 100.0 | 100 | 1.0000 | .993 | 100.7 |
| 1914 | 103.9 | 100 | 1.0390 | 1.033 | 100.6 |
| 1915 | 114.3 | 101 | 1.1317 | 1.072 | 106.6 |
| 1916 | 135.8 | 124 | 1.0952 | 1.117 | 121.6 |
| 1917 | 158.4 | 176 | .9000 | 1.156 | 137.0 |
| 1918 | 172.6 | 196 | .8806 | 1.197 | 144.2 |
| 1919 | 192.6 | 212 | .9085 | 1.236 | 155.8 |
| 1920 | 205.6 | 243 | .8461 | 1.274 | 161.5 |
| 1921 | 189.3 | 153 | 1.2373 | 1.315 | 144.0 |

1. Computed from data on deposits in national banks.

2. Bureau of Labor Statistics "All Commodities" index.

3. These are also the reciprocals of $\frac{V}{P}$. The values are ordinates of the smooth curve shown in Figure 1, fitted by the method of least squares to the actual values of $\frac{M}{P}$, 1890-1916. The equation is:

$$\log y = 9.796 + .0222x - .000179x^2 - .00000322x^3 - 10$$

$$\text{or } y = \frac{.625 (1.0285)^x}{(1.000413)^{2x} (1.00000742)^{2x}}$$

where $y = \frac{M}{P}$ and x is the year, measured from 1903 as origin.

4. Calculated by dividing the index number of circulating medium by the normal value of $\frac{M}{P}$ (the reciprocal of the normal value of $\frac{V}{P}$).

TABLE II. INDEX NUMBER OF NORMAL PRICE LEVEL FOR
DATE OF EACH COMPTROLLER'S REPORT, 1906-12

| Date | Circulating medium (1913 = 100) ¹ | Normal $\frac{M^s}{P}$ | Normal price level |
|----------------|--|---------------------------|--------------------------|
| Jan. 29, 1906 | 63.05 | .711 | 88.7 |
| Apr. 6, 1906 | 63.35 | .717 | 88.4 |
| June 18, 1906 | 64.91 | .724 | 89.7 |
| Sept. 4, 1906 | 65.68 | .732 | 89.7 |
| Nov. 12, 1906 | 67.65 | .740 | 91.4 |
| Jan. 26, 1907 | 70.03 | .747 | 93.7 |
| Mar. 22, 1907 | 69.79 | .753 | 92.7 |
| May 20, 1907 | 70.51 | .759 | 92.9 |
| Aug. 22, 1907 | 72.25 | .768 | 94.1 |
| Dec. 3, 1907 | 68.78 | .777 | 88.5 |
| Feb. 14, 1908 | 68.47 | .787 | 87.0 |
| May 14, 1908 | 71.23 | .796 | 89.4 |
| July 15, 1908 | 72.04 | .801 | 90.0 |
| Sept. 23, 1908 | 74.41 | .806 | 92.4 |
| Nov. 27, 1908 | 76.27 | .815 | 93.6 |
| Feb. 5, 1909 | 77.17 | .820 | 94.1 |
| Apr. 28, 1909 | 78.74 | .830 | 94.9 |
| June 23, 1909 | 80.04 | .836 | 95.7 |
| Sept. 1, 1909 | 81.41 | .843 | 96.6 |
| Nov. 16, 1909 | 83.19 | .849 | 98.0 |
| Jan. 31, 1910 | 82.94 | .858 | 96.7 |
| Mar. 29, 1910 | 85.79 | .864 | 99.3 |
| June 30, 1910 | 84.15 | .873 | 96.4 |
| Sept. 1, 1910 | 84.81 | .879 | 96.5 |
| Nov. 10, 1910 | 86.43 | .886 | 97.6 |
| Jan. 7, 1911 | 86.87 | .896 | 97.0 |
| Mar. 7, 1911 | 88.44 | .902 | 98.1 |
| June 7, 1911 | 90.66 | .911 | 99.5 |
| Sept. 1, 1911 | 90.61 | .920 | 98.5 |
| Dec. 5, 1911 | 92.17 | .929 | 99.2 |
| Feb. 20, 1912 | 94.24 | .943 | 99.9 |
| Apr. 18, 1912 | 95.45 | .948 | 100.7 |
| June 14, 1912 | 97.22 | .954 | 101.9 |
| Sept. 4, 1912 | 97.75 | .961 | 101.7 |
| Nov. 26, 1912 | 99.06 | .970 | 102.1 |

1. Computed from data on deposits in national banks reported to the Comptroller of the Currency for the date shown.

2. Obtained by interpolating from the average annual values shown in Table I.

TABLE III. INDEX NUMBER OF NORMAL PRICE LEVEL FOR
DATE OF EACH COMPTROLLER'S REPORT, 1916-22

| Date | Circulating medium (1913 = 100) ¹ | Normal M_1 P | Normal price level |
|----------------|--|------------------------|--------------------------|
| Mar. 7, 1916 | 127.39 | 1.1034 | 116 |
| May 1, 1916 | 128.42 | 1.1101 | 116 |
| June 30, 1916 | 130.10 | 1.1169 | 116 |
| Sept. 12, 1916 | 136.32 | 1.1254 | 121 |
| Nov. 17, 1916 | 146.87 | 1.1322 | 130 |
| Dec. 27, 1916 | 145.58 | 1.1373 | 128 |
| Mar. 5, 1917 | 147.33 | 1.1426 | 129 |
| May 1, 1917 | 150.90 | 1.1493 | 131 |
| June 20, 1917 | 152.93 | 1.1561 | 132 |
| Sept. 11, 1917 | 159.30 | 1.1646 | 137 |
| Nov. 20, 1917 | 167.62 | 1.1731 | 143 |
| Dec. 31, 1917 | 170.33 | 1.1765 | 144 |
| Mar. 4, 1918 | 165.81 | 1.1834 | 140 |
| May 10, 1918 | 167.67 | 1.1918 | 141 |
| June 29, 1918 | 164.80 | 1.1969 | 137 |
| Aug. 31, 1918 | 170.79 | 1.2037 | 142 |
| Nov. 1, 1918 | 177.49 | 1.2104 | 147 |
| Dec. 31, 1918 | 189.25 | 1.2173 | 155 |
| Mar. 4, 1919 | 176.86 | 1.2225 | 145 |
| May 12, 1919 | 184.31 | 1.2307 | 150 |
| June 30, 1919 | 182.82 | 1.2360 | 147 |
| Sept. 12, 1919 | 200.13 | 1.2445 | 161 |
| Nov. 17, 1919 | 206.44 | 1.2513 | 165 |
| Dec. 31, 1919 | 204.99 | 1.2564 | 162 |
| Feb. 28, 1920 | 210.33 | 1.2601 | 167 |
| May 4, 1920 | 209.53 | 1.2668 | 165 |
| June 30, 1920 | 206.96 | 1.2736 | 162 |
| Sept. 8, 1920 | 208.53 | 1.2804 | 163 |
| Nov. 15, 1920 | 203.66 | 1.2888 | 158 |
| Dec. 29, 1920 | 194.48 | 1.2940 | 151 |
| Feb. 21, 1921 | 163.90 | 1.3015 | 126 |
| Apr. 28, 1921 | 179.77 | 1.3083 | 137 |
| June 30, 1921 | 176.31 | 1.3151 | 134 |
| Sept. 6, 1921 | 172.62 | 1.3219 | 131 |
| Dec. 31, 1921 | 178.84 | 1.3360 | 134 |
| Mar. 10, 1922 | 174.37 | 1.3407 | 130 |
| May 5, 1922 | 175.71 | 1.3470 | 130 |
| June 30, 1922 | 183.56 | 1.3534 | 136 |
| Sept. 15, 1922 | 189.48 | 1.3614 | 139 |

1. Computed from data on deposits in national banks reported to the Comptroller of the Currency for the date shown.

2. Obtained by interpolating from the average annual values shown in Table I.

Inasmuch as $\frac{V}{T}$ and $\frac{P}{M}$ are quantities of which it is difficult to form a definite conception, it has been thought better to compute values for their reciprocal, $\frac{M}{P}$. This makes use of the familiar concept of reducing values to the basis of a common price level and seems preferable, despite obvious limitations of the concept in this application.

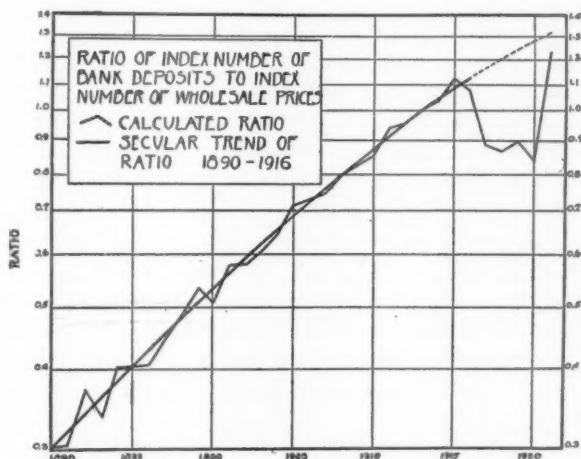


FIG. 1. The smooth curve forms the basis, together with the index number of circulating medium, for determining the normal price level shown in Figures 2, 3, and 4. It may be interpreted as an index of the changes in the amount of circulating medium necessary to maintain a constant price level.

The values of $\frac{M}{P}$ are shown in Figure 1, plotted to a logarithmic vertical scale. This scale has the advantage that a uniform rate of increase, an increase of 10 per cent each year, for example, appears on such a chart as a straight line. Examination of Figure 1 shows that a

slightly curved line drawn through the points representing the annual values of $\frac{M}{P}$ comes quite close to all of them for the period 1890-1916. From 1917 to 1920 the actual values of $\frac{M}{P}$ are far below the line so drawn, but the figure for 1921 shows again a fairly close proximity of the two.

The curved line designated in Figure 1 as the secular trend to the ratio $\frac{M}{P}$ is fitted by the method of least squares to the data for 1890-1916. The dotted portion of the line, 1917-21, is obtained by extrapolation from the equation obtained for 1890-1916. The use of an accurate mathematical method for determining this line was dictated by the requirements of the further uses to which it is to be put.

Points on the line of secular trend⁹ of the ratio $\frac{M}{P}$ may be considered as normal values of $\frac{M}{P}$. The closeness of the fit and the regular alternation of the points from one side to the other is almost conclusive proof of the hypothesis of a normal value of the ratio $\frac{V}{T}$ (of which $\frac{M}{P}$ is the reciprocal) — a changing value, it is true, but nevertheless a normal to which the actual values of $\frac{V}{T}$ are continually impelled to return.

The line of secular trend of the ratio $\frac{M}{P}$ takes on added

9. Values of ordinates of the line of secular trend will be found in Tables I, II, and III.

significance if it is looked upon as an index of the amount of circulating medium which would have been necessary to maintain the level of prices constant at the 1913 level. It appears that in 1890 the amount of circulating medium necessary to maintain a given level of prices was only 30 per cent of the amount necessary in 1913. The amount of circulating medium necessary in 1891 was approximately 6 per cent greater than in 1890.¹ This rate of increase in the amount of circulating medium necessary to maintain a constant price level continued at approximately 6 per cent per annum for ten or fifteen years. But gradually a tendency for diminution in this rate of increase made itself felt, so that by 1915 the amount of circulating medium necessary to maintain a constant price level was increasing at a rate of only about 4 per cent per annum.

It may appear surprising that the amount of circulating medium necessary to do the business of the country should show such a rapid rate of increase. The rate of increase of the population during this period has been slightly less than 2 per cent per annum.² However, there is good reason to think that the amount of business to be done has been increasing much more rapidly than the population. For example, the railways of the United States carried an average of 82 billion ton-miles of freight a year in the five-year period 1890-94, and an average of 295 ton-miles a year in 1912-16.³ This represents a rate of increase of 5.9 per cent per annum for the period.⁴

1. A 6 per cent increase over 30 per cent gives 32 per cent, not 36 per cent, it must be remembered.

2. G. C. Whipple, *Vital Statistics*, p. 137, gives 1.92 per cent as the rate of increase between 1900 and 1910. The last census shows a lower rate of increase since 1910.

3. Data from the *Statistical Abstract of the United States*, 1920, p. 811.

4. Rate of increase is calculated as follows: $\frac{295}{82} = 82 (1.059)^{25}$; $1.059 - 1.000 = .059$ or 5.9 per cent.

As previously explained (p. 235), the normal value of $\frac{M}{P}$ is the reciprocal of the normal value of $\frac{V}{T}$. Accordingly we are now provided with the three index numbers necessary for the completion of the study.⁵

By substituting in the equation $M \times \frac{V}{T} = P$ the values of the index number of circulating medium (M) and of the index number of normal values of $\frac{V}{T}$ it is possible to obtain what may be called normal values of P . In this sense the normal values of P constitute an index number of normal price level. If the hypothesis upon which the study is based⁶ is valid, it is to be expected that the index number of actual price level will show a strong tendency to follow this index number of normal price level.

The two index numbers are plotted in Figure 2. It is immediately apparent that the periods 1890-1916 and 1917-21 deserve separate consideration.

The method of construction of the index number of normal price level makes it inevitable that the general trend of the two index numbers from 1890 to 1916 be the same. It is upon the more detailed correspondence that the test of the hypothesis hinges.

The first significant point to be observed is that nowhere prior to 1917 is there any consistent divergence. The second significant point appears upon examination of the year-to-year changes in the two index numbers. In all but a few cases, changes in the index number of normal price level are followed *one year later* by similar changes in the index number of actual price level. Computation of the Pearsonian coefficient of correlation

5. Cf. *supra*, p. 233.

6. Cf. *supra*, p. 229.

for year-to-year changes in the two index numbers, with a lag of one year, for the period 1890-1916, gives a coefficient of $+ 0.57 \pm .09$.⁷

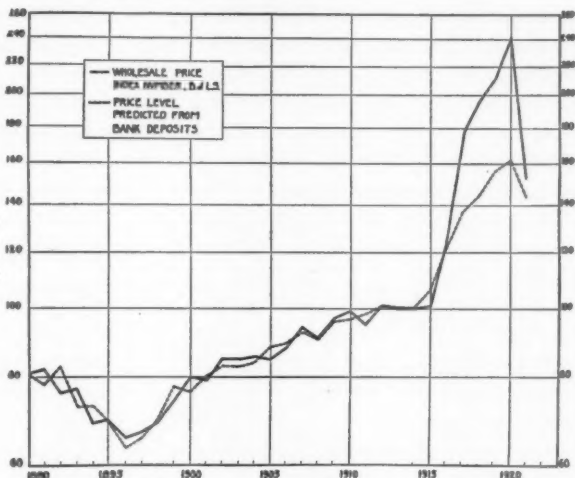


FIG. 2. With few exceptions the actual price level appears to follow the movements of the predicted or "normal" price level with a lag of one year. The only exceptions prior to 1917 are cases in which no lag appears. Apparently the lag is actually about eight months.

The only cases in which the index number of normal price level is not followed one year later by a similar change in the index number of actual price level are cases in which the two index numbers move concurrently. This suggests that the lag between the two is less than a full year — that the actual price level follows the normal price level with a lag of perhaps something like eight months. In that event, any comparison of annual data must greatly understate the closeness of the relation between the two index numbers.

7. For the benefit of those unfamiliar with the various methods used in computing coefficients of correlation, it may be noted that a correlation of year-to-year changes is very different from a correlation of the original values of two series. A correlation of the original values in this case would show practically perfect correlation.

It is possible to continue the study along the lines thus suggested by computing the normal price level for the date of each report of national banks to the Comptroller of the Currency. The labor involved, however, is too great to be justified at the present stage of the study. Instead, the computation has been made only for the period 1906-12, a period during which the annual data indicate a complete absence of the lag shown during the remainder of the period 1890-1916. The results are presented in Figure 3.

In interpreting the detailed data of Figure 3 it is necessary to remember that this is the one period be-

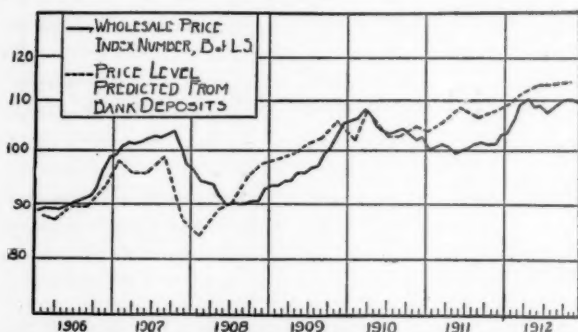


FIG. 3. Detailed data show the existence of a lag between predicted or "normal" price level and actual price level not apparent in the annual data of Figure 2.

tween 1890 and 1916 for which the annual data show a definite failure of the actual price movements to follow the predicted or normal price movements. It is necessary to remember also that the index number of actual price level is monthly, while the index number of normal price level is obtainable for only five dates in each year.

Examination of Figure 3 shows a fairly close tendency of the index number of actual price level to follow the index number of normal price level with a lag of several

months. There is reason to think it necessary to discount the peaks in the curve of normal price level at August 22, 1907, and March 29, 1910. These are dates at which the onset of financial stringency had put unusual pressure on the banks, which may have resulted in a temporary expansion of deposits. Perhaps more detailed data would show these peaks as brief interruptions of a downward trend begun several months before. If these peaks, each due to the figure for bank deposits on a single date, be leveled out, the tendency for actual price level to follow normal price level with a considerable lag appears much more definite.

The result of the foregoing analysis is to establish clearly the validity of the hypothesis arrived at in the early part of the study, as far as the period 1890-1916 is concerned. The doubtful points in the hypothesis were the assumptions (a) that "the velocity of circulation and the volume of trade . . . in actual fact tend to change at a uniform rate," and (b) that "any disturbance" of this uniform rate of change "is soon corrected by a change in the value of the circulating medium.

The uniformity of the rate of change in the trend of $\frac{V}{T}$

(and presumably of both velocity of circulation and volume of trade separately) is established unquestionably by the remarkable closeness with which the actual values fluctuate about the perfectly smooth curve shown in Figure 1. The tendency of a disturbance in the rate

of change of $\frac{V}{T}$, to be soon corrected by a change in the

value of the circulating medium, is found to be fairly clear during the seven years from 1906 to 1912, and unequivocal for the remaining twenty years. Further, the average period required to bring about the change in value of the circulating medium is indicated to be

slightly less than a year. The existence of this lag definitely disproves the contention that price changes are the cause of changes in the quantity of circulating medium.

The four years 1917-20 exhibit a relationship very different from that found in the twenty-seven previous years. Figure 4 shows the details of the movements of the index number of normal price level and of the index number of actual price level. Until August, 1916, the rise in the actual price level may be attributed to the increase in circulating medium which took place in

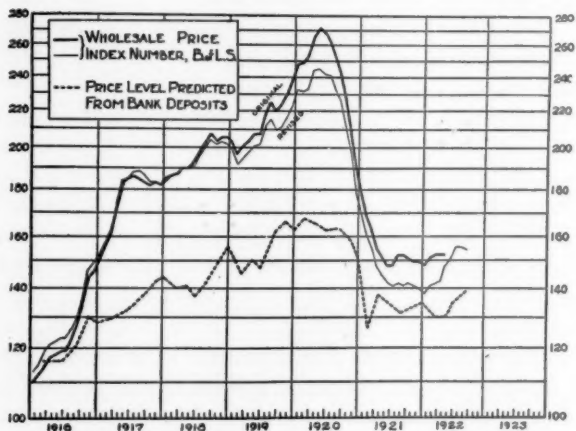


FIG. 4. The 30 per cent discrepancy between the "normal" price level and the actual price level, developed in a period of about ten months, lasted three years, and practically disappeared in a period of six months.

1915, as shown by the increase in the index number of normal price level for that year (Figure 2).

In August, 1916, there began a spectacular rise in actual price level, which continued unbroken until June, 1917. Compared with this rise, the increase in the index number of normal price level was moderate. A slight

recession in the actual price level brought it to a point about 30 per cent above the normal price level. The index number of normal price level continued to rise irregularly but with a steep and fairly constant upward trend until the end of 1919. From the summer of 1917 until the summer of 1919 the index number of actual price level continued at a point about 30 per cent above the index number of normal price level.

In the summer of 1919 the index number of actual price level began another steep upward climb. A few months afterward the index number of normal price level flattened out. The index number of actual price level continued to draw farther away from the index number of normal price level until May, 1920, when the tremendous price deflation of 1920 began.

It is a matter of common belief that the check which the Federal Reserve banks put upon the increase of bank deposits in the latter part of 1919 was the force which, in the spring of 1920, put a stop to soaring prices and brought on the period of deflation. The data in Figure 4 point in this direction, but the relation between the two index numbers during the period is too indefinite to establish changes in one as indicating definitely the cause of changes in the other.

By the summer of 1921 the index number of actual price level had returned to a point about 10 per cent above the normal price level. This may indicate that normal price level must now be calculated upon a slightly

different basis. The value for $\frac{V}{T}$ used in calculating the

normal price level for 1921 was obtained by extrapolation of a curve obtained from data for 1890-1916. This casts some doubt upon its accuracy. Of more importance, however, is the fact that the war has brought changes of a magnitude to make it probable that the uniformity of

the rate of change of the normal value of $\frac{V}{T}$ has suffered a break which leaves it proceeding on a new level. This fact makes it impossible at present to use the index number of normal price level as a basis for forecasting changes in the actual price level.

IV

In a few years there will be available enough additional data to permit the determination of the new trend of $\frac{V}{T}$. When those data are available the method outlined above should prove valuable as a method of forecasting general price changes.

The method may also prove adapted to the still more useful purpose of aiding in the control of price changes and, with them, of the alternating periods of abnormal prosperity and depression. Knowing the amount of circulating medium necessary to maintain a constant price level,⁸ the Federal Reserve Board, or any other body with regulative powers, would have a foundation upon which to base measures of control.

In this connection it may be noted that the tendency of price changes to follow changes in the quantity of circulating medium by a period of almost a year indicates that Professor Fisher's scheme for stabilizing the dollar would not take care of the fluctuations connected with the business cycle. It might even aggravate them, as suggested by Professor Arbuthnot.⁹ This does not condemn Professor Fisher's scheme, which the writer looks upon as the most promising remedy for a serious defect in our currency system, but rather points to the

8. Cf. *supra*, p. 232.

9. Cf. *American Economic Review*, December, 1920, p. 776.

necessity of supplementing Professor Fisher's method with intelligent control of the extension of bank deposits.

Those who have followed the literature of quantity theory will recognize that the conclusions of the present study are in marked contrast to the common explanation of the great rise in prices during the war. If no attention be paid to the need for a steady increase in the quantity of circulating medium in order to maintain a constant price level, the increase in bank deposits seems to offer an almost perfect explanation of the increase in the general price level from 1913 to 1919.¹ This neglect of the normal annual increase in circulating medium required to do the business of the country proves to be a matter of such importance that it has blinded monetary theorists to the fact that the increase in the volume of circulating medium does not completely explain the high prices existing between 1917 and 1920.

The discrepancy immediately raises the question of the homogeneity of the data used in constructing the index number. This has been investigated by carefully scrutinizing the detailed data in each report of the Comptroller of the Currency to discover any discrepancy which might arise from a change in classification of liabilities of national banks and by comparing the changes in deposits in national banks with changes in deposits in other banks. The data appear to be reliable and homogeneous.

The only important defect in the index number of circulating medium appears to be the neglect of changes in the amount of circulating medium used by the federal government. It has been thought best to take account of this by making allowance for the changes in

1. Cf. E. W. Kemmerer, "Inflation," in the *American Economic Review*, June, 1918, p. 247; and Kemmerer, *High Prices and Deflation*; also an article by the present writer in the *Annalist*, June 27, 1921, p. 686.

the amount of business carried on by the government rather than by including in the construction of the general index number data on circulating medium in use by the government. The velocity of circulation of money in the hands of the government may be very different from that of money in the hands of private individuals and organizations.

Of course the departure of the actual price level from the price level which the quantity of money in the country seemed to justify is associated with a corresponding

departure of the actual value of $\frac{V}{T}$ from the normal

value of $\frac{V}{T}$. Figure 1 shows graphically the extent to

which the actual value of $\frac{V}{T}$ rose above the "normal"

based on the trend of the previous twenty-seven years.

(The chart shows the reciprocal of $\frac{V}{T}$, it will be remem-

bered.) As just explained, part of this discrepancy probably is due to the fact that the government took large quantities of goods out of the regular channels of trade, thus decreasing the T of the formula. Other factors which probably decreased the volume of trade are the fact that the handling of goods for export, of which the quantity increased greatly during the war, involves fewer transactions than the handling of goods for domestic consumption, and the fact that the activities of the Food Administration and other agencies reduced the activities of middlemen and consequently the number of turnovers of commodities used within the country.² Another factor of importance is the decrease which

2. The writer is indebted to Professor Allyn A. Young for the suggestion of the possible importance of these two factors.

took place in the amount of speculation, both in securities and in produce.

The evaluation of the effects of the various factors reducing the volume of trade presents an exceedingly difficult problem which has not been attempted. Such a study should prove very valuable if accurate results could be obtained. However, an investigation of the character of the discrepancies to be explained makes it appear that the factors suggested are quite inadequate as explanations. A discrepancy of 30 per cent between the price level predicted from the volume of circulating medium and the actual price level developed during a period of ten months between July, 1916, and May, 1917, as will be seen from an inspection of Figure 4. Having developed thus quickly, the discrepancy remained relatively constant for three years, then disappeared almost completely within a period of six months, June, 1920, to January, 1921. None of the factors which have been suggested as partially explaining the discrepancy appears to justify precisely this behavior.

If changes in the volume of trade offer only a partial explanation of the discrepancy, as appears to be the case, there must have been some marked changes in velocity of circulation. It is at least possible that the discovery of the causes for these changes in velocity of circulation might constitute an important contribution to monetary theory.

V

The conclusions of the foregoing study may be summarized as follows:

1. For the twenty-seven years, 1890-1916, excellent statistical support is obtained for the following hypothesis developed from the quantity theory of

money: The value of the circulating medium is completely determined by the quantity of the circulating medium, the velocity of circulation, and the volume of trade, the latter two of which factors tend to be constant in a static state and in actual fact tend to change at a uniform rate, any disturbance of which is soon corrected by a change in the value of the circulating medium.

2. Changes in the general price level follow changes in the quantity of circulating medium by a period averaging slightly less than one year.
3. The contention that changes in the general price level are not the results but the causes of changes in the quantity of circulating medium is definitely disproved, at least for the twenty-seven years from 1890 to 1916.
4. Changes in the general price level and other phenomena of the business cycle can be controlled by regulating the volume of bank deposits.
5. Professor Fisher's plan for stabilizing the dollar would not take care of the price fluctuations incident to the business cycle.
6. The hypothesis stated above fails to explain the high prices of the period from 1917 to 1920.

SUPPLEMENTARY NOTE

Since completing the foregoing paper, the writer has read Professor Alvin H. Hansen's interesting monograph, *Cycles of Prosperity and Depression in the United States, Great Britain, and Germany*. For the period which he treats, Professor Hansen finds that cash reserves in New York Clearing-house banks fluctuate concurrently with deposits in New York Clearing-house banks, the correlation being very high (+ .956),

and that both precede the fluctuation of the wholesale price index number by a period of about eighteen months.

For present purposes, the point of greatest interest in Professor Hansen's monograph (aside from his general concurrence with the findings of the present study) is the fact that he finds cash reserves fluctuating so closely with deposits. With such an exceedingly close relation between reserves and deposits in New York City, it is highly probably that a similar relation would be found for the country as a whole. But how explain an increase in bank reserves over the entire United States and a simultaneous increase in other countries, as called for by Professor Hansen's theory?

These considerations suggest a theory of the causal relations lying behind the business cycle. Lowered prices mean less money needed in hand-to-hand circulation; this excess cash flows to the banks, giving larger reserves, encouraging expansion of deposits, and causing higher prices. But higher prices require more money in hand-to-hand circulation and the pendulum swings back again.

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APPENDIX

CONSTRUCTION OF THE INDEX NUMBER OF
CIRCULATING MEDIUM

THE decision to omit statistics on money in actual circulation in calculating the index number of circulating medium was arrived at after consideration of the modifications which their omission might make in the final index number and of the difficulties of including the data. The modifications in the index number of circulating medium which probably would result from the omission of statistics on money in actual circulation have been discussed in the text.¹

For each year, from 1896 to 1918, Professor Fisher has calculated the amount of money in actual circulation.² The calculation involves correction of the official figures on money in the United States, deduction of money in the United States Treasury and money in banks, and, since 1913, deduction of money in Federal Reserve banks. Inclusion of data on money in actual circulation would necessitate weighting in proportion to its velocity of circulation as compared with the velocity of circulation of bank deposits. Examination of the estimates made by Professor Fisher indicates that inclusion of data on money in circulation in no case would affect the year-to-year changes in the index number of circulating medium by more than about one-half of one per cent. The advantage which might be gained does not justify the extra labor involved.

The first index number of circulating medium actually constructed was based on a calculation of demand deposits subject to check in national banks, state banks, and trust companies, making use as far as possible of the calculations made by Professor Fisher. This index number gave the surprising result that demand deposits decreased considerably between 1916 and 1917. On investigation, the decrease proved to be due entirely to a large decrease in demand deposits reported for state banks and trust companies. At the same time there was shown a large increase in demand deposits in national banks and an almost identical increase in total deposits in state banks and trust companies. Obviously the difficulty lay in some change in the classification of deposits as reported by state banks and trust companies.

Further investigation resulted in the conclusion that the statistics for state banks and trust companies are considerably less accurate

1. Cf. *supra*, p. 249.

2. Cf. *The Purchasing Power of Money*, pp. 432-434, and articles in the *American Economic Review*.

than the statistics for national banks.³ The relative inaccuracy of the data for state banks and trust companies is increased by the fact that there is but one report each year, which must be less reliable than an average of the five or six reports made each year by national banks.

There is no reason to suppose that the changes in deposits in state banks and trust companies should differ materially from the changes in deposits in national banks. The distribution of each of the two classes of banks over the country is approximately the same and each should be similarly affected by the conditions which result in fluctuations in the volume of deposit credit. Data on total deposits in each class of banks show no evidence of even a progressive change in the importance of national banks as compared with other commercial banks. For these reasons it appeared best to construct a new index number of circulating medium, omitting the statistics for state banks and trust companies. A further advantage realized from this omission was the possibility of computing the index number for five or six dates of each year instead of for but one date.

The reports of the Comptroller of the Currency list United States deposits separately for each report of condition of national banks except during 1915-16, the last report of 1914, and the first two reports of 1917. Since the United States deposits in national banks are of no value as an index of the amount of circulating medium being used by the government and, further, since they show considerable fluctuation, it appears best to omit them entirely, making separate allowance, where necessary, for changes in the amount of business carried on by the government.

In order to correct for inclusion of United States deposits on the dates for which they are not stated separately, use is made of the ratio of United States deposits to other deposits on the five dates in 1914 for which they are given separately. This correction, applied to the third report in 1917, the first subsequent date for which the amount of United States deposits is known, shows an error of less than .7 of one per cent in the figure for total demand deposits less United States deposits.

In constructing an index of circulating medium, time deposits should not be considered. Prior to 1915 the reports for national banks do not segregate deposits subject to check and time deposits. Professor Fisher⁴ has undertaken to estimate the volume of deposits subject to check for all banks from the figures for total individual deposits. Such an estimate is subject to so much error, however, that it is doubtful if it would improve the final result. The

3. The author is indebted to his colleague, Dean G. W. Dowrie, for valuable suggestions on this point.

4. *The Purchasing Power of Money*, pp. 438-440.

basis for the index number of circulating medium prior to 1915, therefore, is total individual deposits. Beginning with 1915, the basis is demand deposits.

Correction of the deposit figures is necessary on account of the variations in the amount of exchanges for clearing house. Exchanges for clearing house represent amounts which have been credited to deposit accounts of individuals to whom the payments are made but have not yet been cleared and debited to the accounts on which they are drawn. Exchanges for clearing house, therefore, should be deducted from the total deposits. This correction is particularly necessary because exchanges for clearing house are quite variable, being notably large around the first of the month and on Mondays and small on Saturdays. In some years the Comptroller's calls have fallen chiefly on days when exchanges for clearing house are usually large, while in other years they have fallen chiefly on days when exchanges for clearing house are usually small.

The deposit figures given having been corrected by deducting an estimate of United States deposits, where those were not separated in the original data, and further corrected by subtraction of exchanges for clearing house, the series derived from demand deposits was made continuous with that derived from total individual deposits by calculating both for 1915 and dividing the series derived from total individual deposits by the factor necessary to equate the two series at 1915. Construction of the index number was completed by calculating relatives to the value for 1913 as 100.

DEVELOPMENT OF INDUSTRIAL LAW IN THE ROCHESTER CLOTHING MARKET

SUMMARY

Introduction: the trade agreement regarded as a constitution for industry. — I. The decisions of the arbitrator under the Rochester agreement limit both parties according to principles agreed upon in the "constitution," 259. — II. A shifting balance of power, generally in favor of the workers, appears in decisions of the arbitrator on discharge and discipline of employers and union officials, 263. — On introduction of machinery, 269. — Lockouts and stoppages, 270. — Hiring and division of work, 271. — Quitting, 272. — Transfers and promotions, 273. — Abolition of home work, 273. — III. A public purpose is discoverable in the arbitrator's decisions, as regards progress of the industry, 275. — Stability of the market, 280. — Safeguarding of collective bargaining, 288. — IV. Conclusion: A code of law is being developed co-existent with, and similar to, the law expressed in public courts. Will the common law of the courts eventually absorb "industrial law"? 289.

A CONSIDERABLE shifting of bargaining power from employers to employees in America has been evident during the past twenty-five years, as seen in the growth of trade unions and employers' shop councils. The causes of this redistribution of power have been manifold. Trade-union organization and pressure have been but one influence. Back of this have been such tendencies as the rapid expansion of industry, creating a larger and fluctuating demand for labor of various types, the accumulation and concentration of capital into units of great economic power, and the changing attitude of the courts toward the status of labor. Of more recent significance has been the practical cessation of immigration during the World War and the continuance of restriction by law. These and other factors have contributed to a situation in which the workers as a group

possess greater bargaining power than during the last decade of the nineteenth century.

The present article is not concerned primarily with influences which are long-time in their incidence. Such factors as those enumerated above are deliberately left in the background in order to concentrate attention on the trade agreement as an instrument through which this tendency has been expressed, recorded, and made relatively secure.

The growing importance of trade agreements in the process of collective bargaining is recognized as an outstanding development of recent labor history.¹ Wherever, through a variety of causes, organized workers have become sufficiently powerful to place limits on the old-time complete freedom of employers to run their businesses without interference, a collective trade agreement has in most cases resulted. Mr. Leiserson, for two years the arbitrator in the Rochester clothing market, whose decisions are here reviewed in part, has compared trade agreements to the written constitutions of political history, whereby a similar transfer of governing power from the few to the many was guaranteed.² While the analogy may be pressed too far, it is useful. It indicates that the working rules developed in and through trade agreements may be regarded as the law of the industry or market. And this is actually the view of many employers and workers, either by implication or by express recognition. They mean simply that, under the trade agreement, shop management, so far as it affects workers, is government by law, as laid down in the constitution (trade agreement), instead of by men—the wish or whim of the employer or his agent.

1. Commons, J. R., "Tendencies in Trade Union Development in the United States," *International Labor Review*, vol. v, No. 6, pp. 861, 872-875, June, 1922.

2. Leiserson, W. M., "Constitutional Government in American Industries," *American Economic Review*, vol. xii, No. 1, Supplement, pp. 56-79 (March, 1922).

The present article is concerned with a special aspect of trade agreements as industrial constitutions, namely the judicial function (distinguished from legislative and executive functions) as developed through arbitration.

I. ARBITRATION UNDER THE ROCHESTER CLOTHING TRADE AGREEMENT

In many cases resort to arbitration in the event of a deadlock in negotiations has been a part of trade agreements. In 1911, however, in the men's clothing industry we find a special use of arbitration which is significant in the development of law in industry. Theretofore arbitration had on the whole been resorted to only occasionally in crises of great moment. In the Hart, Schaffner and Marx agreement of 1911 arbitration became a continuous, day-to-day function, an integral part of the machinery of industrial management. The same principle was incorporated in the first agreement covering the entire Chicago men's-clothing market in 1919. The decisions of the arbitrators during the three-year life of this agreement have been digested and recently were analyzed.³

The experience of the Rochester men's-clothing market dates from April, 1919. At that time the Clothiers' Exchange and the Rochester Joint Board of the Amalgamated Clothing Workers of America entered into a year's agreement which included provision for an impartial arbitrator. In 1920 this contract was renewed with some changes for two years, and again in May, 1922, was renewed for a three-year period, in modified form.

It is unnecessary to consider in detail the bargaining process giving rise to trade agreements. It is a process of

3. Leiserson, W. M., *op. cit.*, p. 2.

proposal, counter-proposal, and compromise, of give and take, each side seeking to safeguard its interests to the utmost. The resulting contract is the fundamental law marking out that province of management wherein law and order shall replace unbridled use of economic force. It lays down the general principle that the employer's power of management shall be so limited as not to encroach on the worker's legitimate rights. This gives the worker immunity from arbitrary use of power against him. Correlative to this immunity is the immunity of the employer from direct action by the union, whether in the form of stoppages or individual quitting without notice. This is the union's *quid pro quo* for what the employer gives up.

It is impossible to tell from a mere reading of the agreement just how far the employer may use his power or just what are the legal interests of the workers. The provision, for example, that the power of discharge remains with the employer but that he shall exercise such power with due regard for the rights of the workers, tells us little about how much power remains with the employer or what the rights of the workers are. In the nature of the case considerable latitude of interpretation is inevitable in applying the agreement to concrete situations. The employer contends for a strict interpretation favorable to himself; the union tries to enlarge the limitations on the use of management powers. The "twilight zone" in between the strict and the loose constructionists is the area of practical shop politics. This is also the field where the arbitrator operates, drawing the lines of limitation according to the equities, purposes or powers in each particular case.

The task of the arbitrator then is to voice the law of the market, which tells employer and union what each may or may not do and what each has a right to expect

from the other party. Under these circumstances the use of power is no longer a question of "can" or "cannot," but of "may" or "may not." The unlimited power of the old-time employer gives way, during the life of the agreement, to limited power, which is the essence of constitutional government and of law.

That such wide powers are given to arbitrators in the clothing industry is due in the main to their theory of the arbitral function. Heretofore the bringing of third parties into industrial disputes often caused arbitration to fall into disrepute, largely because the arbitrators tried to decide an issue according to abstract principles with little or no regard for the previous negotiations and bargaining strength of the two parties to the dispute. This is legislation rather than adjudication. It is the strict Roman law tradition with no consideration of motives or personalities. In part this attitude probably arises from infrequent contact between arbitrator and the employers and workers involved. In the clothing industry the arbitrator is daily in contact with representatives of employer and workers. The stream of cases coming up for decision makes him keenly aware of the strength and weakness, the virtues and faults of both sides. Consequently the arbitrator is able to assess motives, personalities, and bargaining strength with a working degree of accuracy. Recognition that decisions must not do violence to the relative bargaining strength of the two parties in dispute is a significant advance in the technique of industrial arbitration.

Rochester and Chicago arbitrators differ somewhat in faithfulness to a strict construction of the agreements. The absence of an appeal board of arbitration in Rochester seems to force the arbitrator to consider the political effect of his decision; he is less able to decide cases strictly on a basis of equity or of construction of the

agreement than is the appeal board in Chicago, operating in a more removed and secluded atmosphere. The resulting impression on one who reads the Rochester decisions has been succinctly described as "giving the language to one party and the verdict to the other." This method is not necessarily discreditable to the arbitrator. It has its political advantages in softening the blow of an adverse verdict. At the same time it has a disadvantage in creating an apparition of the arbitrator as the dictator and law-giver of the market. Yet this apparition is not entirely ephemeral. There are decisions, ostensibly interpreting existing constitutional provisions of the agreement, which are based more on the spirit than the letter of the agreement. Still it is hardly just to accuse the arbitrator unqualifiedly of indulging in "judge-made law." Usually the two parties to the agreement were consulted for their views before such decisions were announced. Moreover in Rochester the creation of a Labor Adjustment Board, composed of the labor managers and union agents, was prompted by a desire for a legislative tribunal coördinate with the judicial office, capable of acting on new issues or interpretations. Under this arrangement, however, neither side was eager to assume legislative responsibility, probably for reasons of "political expediency." As a result the Impartial Chairman had to resolve deadlocks by casting the deciding vote, which meant imposing his interpretation on the market. Thus the tactics of the situation and the structure of the arbitration machinery fostered a tendency toward "judicial law-making." On the other hand the Chicago Board of Arbitration, being in the more remote position of appellate court for the Trade Boards, is more strategically situated for legalistic constructions of the fundamental law inhering in the agreement. In other words the necessity for judicial law-making in Chicago is less imperative.

This divergence in arbitral behavior is reflected by two significant changes in the new Rochester agreement of May, 1922: (1) abolition of the Labor Adjustment Board; (2) insertion of a clause as follows: "The duties and jurisdiction of the arbitrator are fixed and limited by this Agreement. He shall have no power to enlarge such jurisdiction unless by mutual consent of the two parties to this Agreement." These are fundamental changes. The one means doing away with the only joint body that met periodically and was competent to legislate during the life of the agreement. The other change means a restriction of the general grant of judicial power, an enumeration of powers to preclude "judge-made law." The outcome of these changes cannot be foretold.

The absence of any restrictions on the general grant of power to the Impartial Chairman in the first two Rochester agreements reinforces the view that in the decisions of this period will be found the refined substance of industrial law. The decisions fix the exact limitations within the "twilight zone." In them will be found that proportioning of the rights and obligations, powers and immunities of the two parties to the agreement, which is the core of the judicial function. Further, a study of the decisions should reveal not only the channels of shifting bargaining power but also some principles underlying this change of status. In these principles, it is thought, may be found the beginnings of a code of law governing employer-employee relations.

II. THE CHANGING BALANCE OF POWER IN ROCHESTER

Two questions are presented: (1) What shifting of powers between Rochester employers and workers has

taken place in the three-year period of management according to law; (2) What concepts have guided the arbitrator in checking or accelerating this shifting of powers, so far as he has been able to do so?

An entirely adequate answer to the first question can hardly be given without detailed analysis of the decisions, which lack of space inhibits. From a rough classified digest of these decisions the following description of the general tendencies is approximately true — sufficiently so for the present purpose.

1. *Discharge.* Section 4 of the agreement says: "The power to discharge and suspend employees remains with the employer, but it is agreed that this power will be exercised with justice and due regard for the rights of the workers; and if any worker feels that he has been unjustly treated in the exercise of this power, he may appeal to the Labor Adjustment Board hereinafter mentioned which shall have the power of review in all such cases."⁴ In effect this provision says the employer may no longer discharge workers for any or no reason. Disciplinary power of the employer must be exercised according to due process of law, which means that no worker may be discharged without just cause. This limitation serves to protect workers in holding on to their jobs. What is just cause for discharge is determinable only in each separate case. Clear cases of the use of physical violence in the shop, of deliberate insubordination, of deliberate restriction of production, of repeated and proved poor quality of work merit discharge. In other cases where the issue is less clear, where the employer is partly at fault, or where the offense is considered less important, the extreme penalty of discharge is modified to suspension or to reinstate-

4. Unless otherwise specified, all quotations from the agreement in this section are from the 1920-22 agreement, which is reprinted in *Monthly Labor Review*, December, 1920, 1220-21.

ment without pay for time lost pending disposition of the case. If the employer has plainly violated the requirements of due process of law (as in one case where a worker was summarily "fired" for alleged poor work and low production without being informed of complaints before lay-off) reinstatement with full pay for time lost may be ordered. In one of two cases which will be treated in detail below (p. 281) an obligation is imposed on the employer to strengthen the union's disciplinary power by discharging delinquent union workers. The requirement in each case that a worker has a right to his job unless his employer can prove just cause for removal, has resulted in a progressive limitation of this power of management, as the arbitrator has narrowed in new cases the notion of "just cause."

2. *Discipline of employer and union officials.* A distinct group of cases has to do with the disciplining of arbitrary or irresponsible use of power by individuals charged with administering the agreement. No clause of the agreement specifically covers these cases. They fall within the general grant of power to the Chairman: "Sec. 8. . . . Except where the board itself shall otherwise determine, the chairman of the board shall be authorized to take original jurisdiction of all cases and controversies arising under this agreement and to adjust or decide them in accordance with rules of practice and procedure established by the board. . . ." The powers of both sides in this respect have been limited. At the same time that arbitrary and abusive handling of labor by the employer has been penalized, union officials (shop chairmen) have been ordered removed when they showed themselves possessed of poor judgment. In one instance a fine was imposed on an employer who refused to deal with a business agent of the union or with the representative of the manufacturer for whom he was

working. Contrariwise a shop chairman who did not exercise his influence against a stoppage and who took up complaints at all hours was ordered removed from office. Nevertheless the shop chairman, as a responsible official under the agreement, is specially protected against arbitrary discipline by the employer, by the rule that only the Labor Adjustment Board representing both parties to the agreement has power to discipline officials. This immunity of responsible officials corresponds to the immunity of public officials of the state in public law.

3. *Wages.* Three clauses of the agreement cover the wage bargain:

Sec. 11. Upon petition of either party the labor adjustment board shall have the power to determine whether important changes have taken place within the clothing industry, or in industrial conditions generally, which warrant changes in general wage levels or in hours of work; and if it is decided that such changes are warranted, negotiations shall begin between the parties hereto. In the event of a disagreement, the question shall be submitted to arbitration.

Sec. 12. Upon petition of either party, any adjustment of wages of individuals or sections that may be necessary in order to remove serious and unjust inequalities in pay may be made at any time during the life of this agreement, provided that no request for such adjustment shall be heard by the impartial chairman until he has been authorized to consider it by the labor adjustment board. A decision by the impartial chairman in such a matter shall take effect and operate during and after the first full work week after the date of the decision unless the parties otherwise agree.

Sec. 13. A minimum wage for all beginners in the industry and a probationary period during which the employer shall be free to discharge such help without question shall be fixed by the labor adjustment board.⁵

5. The wage clauses of the May, 1922, agreement are as follows: "Sec. 10 (a) The wage levels established by this Agreement shall not be changed under this Agreement except as hereinafter provided. If either party shall become convinced that a change in wage levels is warranted, it may give notice to that effect not later than ninety (90) days prior to the anniversary date of this Agreement and call for a conference on such change. If any change shall be agreed upon it shall become effective on such anniversary date. If, after a thorough canvass of the situation, the parties find themselves unable to agree on wages, either party may in good faith give notice of the termination of the Agreement, provided that the Agreement shall not be terminated before the anni-

The shifting of power in this field has been complex. In the determination of wage levels the union held the upper hand up to the middle of 1920, when the market began to feel the general business depression. During this period the arbitrator had to restrain the union from pursuing its advantage. Since 1920 the economic power of the union has relatively declined, through reduced employment and reduced earnings, and the arbitrator has had to restrain the employer from reducing wages. The turning point was in the August, 1920 decision of the arbitrator, who recognized that the union was justified in demanding upward equalization of wages with other competitive markets, but denied the use of power in this direction because the business of employers could not stand additional wage charges. In two decisions during 1921 the arbitrator justified the employer in seeking reduced labor costs, but substituted for a general wage cut greater freedom for the employer in extending the piece work system. Generally speaking, however, the requirement that wage issues be arbitrated has been a protection of each side against the other as well as a restriction on the arbitrary use of power by either side. Direct action in determining wage levels was displaced under the first two agreements by determination according to a "legal" process of bargaining coupled with due care that such restriction may not counterbalance the desirability of retaining the agreement system.

The same observation applies to the adjustment of wage rates. The dominant tendency has been to equalize wages on the same operation and to standardize

versary date, nor before the expiration of thirty (30) days from date of said notice of termination. (b) Piece rates, standards of production, and wages of week workers in effect May 1, 1922, cannot be reduced or raised during the term of this Agreement, unless by the mutual consent of the parties to this Agreement." This drastic change in wage adjustment procedure was induced in large measure by joint dissatisfaction with the application of the May and October, 1921 so-called "piece-work decisions," General Awards 4 and 5.

differential wages of different operations. This denies to the individual worker the right to force his wages far above wages of workers doing similar work. By the same token the employer is denied the right to cut wages below those of workers on similar operations. Since wage rates may legally be adjusted only by due process, i. e., collective bargaining, the individual bargaining thus denied becomes abstractly a limitation on the powers of both sides. Practically, however, in individual bargaining the employer possesses a distinct advantage. Hence the requirement of collective bargaining in adjusting wage rates constitutes a far-reaching limitation of the employer's power.

An excellent example of this shifting of power according to the state of the market is the problem of piece work payment. Up to the general wage award of May, 1921 an employer was not permitted to transfer a week worker to piece work unless by mutual agreement, the worker being adequately represented by his elected official. After the May decision, not only was this restriction substantially removed, but an obligation was put on the union to coöperate with the employer in reducing labor costs by facilitating transfers from time payment to payment by the piece. In making such transfers the arbitrator stated on several occasions that a week worker going on piece work was expected to increase his output 50 per cent. Half of the saving thus accomplished belonged to the worker in increased earnings 25 per cent above the week-work scale or average, and half of the saving belonged to the employer in reduced labor cost. The obligations put on the individual worker in these cases were compensation to the employer for denying him a general wage cut.

In adjusting piece rates on old operations or making rates for new operations, three principles were almost

invariably involved: (1) equal pay for equal effort in all houses in the market, (2) conformity of changes in rates to changes in work, (3) maintenance of previous or customary earnings on the operation. The first principle leads to standardization of wages throughout the market. In terms of power this means that one employer may not compete with another by underpaying his workers or by "stealing labor" through bidding up wages. It guarantees equality of treatment to all workers and all employers. The second and third principles protect the earning power of workers from fluctuating at the whim of the employer. To the extent that they constitute a restriction of the employer's freedom to fix wages, they limit his power. At the same time the union and its members are held back from "boosting" wages when the bargaining advantage lies with them.

Throughout the cases involving wage rates, it is apparent that the greatest single restriction of the employer's power is the collective bargaining requirement plus the arbitrator's power of review. Obviously the injection into price fixing of a worker's representative, who visibly embodies a known degree of power, must be reckoned as an obstacle to the authority of the employer, formerly unchallenged. Added to this, the workers have the right of appeal to the arbitrator in all cases of real or imagined injustice, and the arbitrator has authority to review such appeals. To be sure the procedure may be initiated by the employer who is entitled to equal protection of the law against illegal encroachments of the union. But it is noticeable that the union thus far seems to have made more frequent use of the protection guaranteed in due process than has the employer.

4. *Introduction of machinery.* "Sec. 5. The right of the employer to make changes in shop management and

methods of manufacturing is recognized, such changes to be made without loss to the employees directly affected." It cannot be said that the employer has retained his full, old-time power in this matter. Tho in principle free to introduce any new processes of management, the employer may not thereby deprive a worker of job or earnings. Consideration for the security of the workers affected is thus in practice a limiting factor in the progressive improvement of industrial processes. The claim of the union that new machinery deprives workers of their trade skill was not allowed by the arbitrator to block industrial improvements, for "in place of it (loss of skill) the worker gains the efficiency that comes from specialization." (Case No. 346.)

5. *Lockouts and stoppages.* "Sec. 6. There shall be no strikes, lockouts, or stoppages of work in any shop covered by this agreement." Abstractly the prohibition of both stoppages and lockouts seems to limit equally the powers of both sides. Practically the outlawing of strikes takes from the union its last resort and most powerful weapon; a weapon of greater importance to the workers than the lockout is to employers. As a consequence, the giving up of the stoppage was the union's chief concession to offset its gains from employers in other matters. In all cases the arbitrator has checked the union when it sought to establish extenuating circumstances having no foundation in fact. According to the provocation and seriousness of the stoppage, the penalties imposed by the arbitrator varied from loss in wages while striking (Cases Nos. 192, 196, 302, 303), to discharge (Cases Nos. 186, 187, 377). In some cases removal of the shop chairman from office was ordered because that official failed to throw his influence against a walkout (Cases Nos. 189, 190, 372). However, despite repeated declarations (Cases Nos. 57, 58, 110, 186, 187,

454) that there was no excuse for stoppages, employers whose acts or behavior were distinctly provocative have been considered not entirely blameless and have been punished by denial of redress, by lost production during stoppages, or by reprimand by the arbitrator. The net result has been a denial of the union's right or power to use the strike weapon, which is in the nature of compensation to employers for what they have been deprived of.⁶

6. *Hiring.* "Sec. 3. The power to hire shall remain with the employer, but in cases where discrimination on account of union membership is charged, the impartial chairman shall have the right of review; and if facts are brought before the impartial chairman that appear to indicate that the labor policy of any house is calculated to undermine the union, he shall have the power to review that policy." The cases involving hiring show a tendency in the union's favor. Despite this so-called "open shop" clause of the agreement, decisions of the arbitrator established the preferential rights of old workers to their jobs after a lay-off (Cases Nos. 286, 304,

6. The corresponding clause of the May, 1922 agreement reads: "This Agreement provides for an orderly adjustment of differences, and there is no provocation for direct action. Stoppages are therefore prohibited. *If, however, a stoppage shall occur* [italics mine], the Union shall immediately order the people to return to work and in the event of their failure to do so, any or all of the participants in or instigators of the stoppage shall be liable to discipline."

The last sentence of this clause seems a confession of weakness. Its inclusion illustrates a legislative attempt to correct an improperly conceived precedent. One sentence in Cases No. 798 and No. 804 reads: "Practice as well as specific decision of the Chairman (see Case No. 244) has recognized that discharge might be imposed by an employer for such violations" (stoppages). But Case No. 244, decided by the preceding arbitrator and used as a precedent in this later decision, contains the following opinion: "It cannot be assumed that a stoppage automatically acts as a discharge any more than it does as a voluntary quitting of work." Apparently the arbitrator in Case No. 798 misconstrued as a practice and precedent of the market the fact that the previous arbitrator rendered a decision before ordering strikers and employer, to resume the *status quo ante*. Case No. 244 was the only stoppage case decided by the previous arbitrator, in which this procedure prevailed. On the basis of other stoppage decisions it was generally recognized procedure that the union was obligated to send strikers back to the shop and the employer was obligated to accept them at work before hearings would be held by the arbitrator. The existing clause is partly designed to correct this contradictory precedent and procedure.

698), the preferential rights of Rochester workers over out-of-town workers (Cases Nos. 230, 455), and the preferential rights of experienced workers over apprentices to employment during slack times (Case No. 692).⁷

7. *Lay-off and division of work.* "Sec. 7. The principle of the equal division of work is recognized and during slack seasons work shall be divided as far as practicable among all workers in the shop." Application of this clause has deprived the employer of his former power of creating an unemployed reserve during slack times for use in cutting wages when business picked up. At the same time the union has been restrained from dictating the exact method of dividing work. The responsibility of the employer for efficient handling of production necessitates that he shall be free to divide the work in whatever fashion he pleases, so long as equality of treatment is accorded each individual worker. In such cases the similarity of the principle involved to "equal protection of the laws," guaranteed in the 14th Amendment, is noticeable.

8. *Quitting.* An informal and unwritten understanding acknowledges the rights of individual workers to quit work provided a week's notice is given to the employer. Thus in cases of quitting, the individual workers, more than the workers' organization, have given up a measure of power and liberty. Formerly the employer had no legal protection against a worker's quitting at any time and for any reason. However, the arbitrator interpreted the understanding in the workers' favor, when it was ruled (Case No. 441) that during slack times only as many days' notice as the shop was working dur-

7. The hiring clause of the new agreement reads: "Sec. IV. The power to hire shall remain with the employers, but in time of unemployment, it is understood that consideration shall first be given to persons who have been employed in local shops doing work for members of the Clothiers' Exchange." This is legislative recognition of a small measure of preference in employment, yet still rather less than was granted by judicial interpretation of the old agreement. It is also noticeable that the union discrimination clause is no longer useful to the union.

ing the week was required, and that, if the employer laid off indefinitely, the worker could not be required to work a week before quitting. Nevertheless, on the whole the employers gained at the expense of the workers.

9. *Transfers and promotions.* The agreement is not specific on transfers and promotions. Decisions involving these matters do not bulk large in number or importance, with the exception of transfers from week work to piece work. The employers have been left relatively free in such powers, so long as they did not use their power to cause "suffering" in wages, degradation of craft status through demotions, unequal treatment in promotions (Cases Nos. 78, 81), or undermining of the union. The last-named contingency was covered in part by an informal understanding apart from the arbitration process that no shop chairman might be promoted to an executive position until six months out of union office.

10. *Abolition of home work.* "Sec. 17. It is agreed that home work shall be abolished and the labor adjustment board shall investigate and work out procedure to this end."⁸ In enforcing this prohibition the gain of both sides should be pointed out. The employer gained in better control over production and over quality, tho losing in money cost. The union improved its position by eliminating a source of depressed wages and sweat-shop conditions and by enlarging its potential membership. In terms of bargaining power the gains of the union more than offset those of the employer.⁹

8. This clause is omitted from the May, 1922, agreement. Home work is substantially abolished in the Rochester clothing market.

9. The provisions of the 1920-22 agreement not yet quoted have to do with the handling of grievances, creation of the Labor Adjustment Board, working hours, payment for overtime, and sanitary control. None of the important digested cases fall clearly within these provisions. Nevertheless the clauses outlining the handling of grievances and creating a quasi-legislative Labor Adjustment Board (*supra*, p. 262) are pertinent to the viewpoint herein expressed, and these clauses are therefore quoted:

"Sec. 2. Handling of grievances. The right of the workers in the industry to bar-

Generally speaking, the decisions of the arbitrator have subtracted from the employer's powers, privileges and authority, and have added to the union's powers, immunities, and liberties. The significant exceptions are stoppages and week's notice of quitting, wherein the union was weakened, and wages, wherein the influence of economic conditions generally was more directly responsible for a shifting of power back and forth. Throughout the decisions there seems to run a guiding notion of due purpose and due process of law. This is the arbitrator's justification for adding to or subtracting from the powers of either side. The bare outline of what constitutes industrial purpose and due process is laid down in the substantive agreement. The spirit, the detail and the content of the terms are supplied through the medium of an arbitrator.

gain collectively is agreed to, and the Amalgamated Clothing Workers of America is recognised as the organisation of the workers, duly authorized to act as the agency for collective dealing with the employers. The employees in every shop shall elect representatives to take up their case with the management in the first instance. If the shop representatives cannot agree with the management, then a union representative shall be called in. The employers shall appoint duly authorized representatives of the management, who shall be responsible for carrying into effect the terms and conditions of this agreement in all their shops."

"Sec. 8. Labor Adjustment Board. The administration of this agreement is vested in a labor adjustment board, consisting of representatives of the employers and of representatives of the workmen, together with an impartial chairman selected by both parties. The representatives of the employers and the representatives of the workmen upon this board shall have an equal vote, regardless of the number of representatives of either side, and in case of a tie vote the impartial chairman shall cast the decisive vote. All disputes or differences over questions arising under this agreement which the parties hereto are unable to adjust between themselves shall be referred to the labor adjustment board for adjustment or arbitration. This board shall have full and final jurisdiction over all such questions and its decisions shall be conclusive, except as may be otherwise provided by agreement of the parties hereto. Except where the board itself shall otherwise determine, the chairman of the board shall be authorized to take original jurisdiction of all cases and controversies arising under this agreement and to adjust or decide them in accordance with rules of practice and procedure established by the board. Decisions of the chairman shall be binding on both parties. . . .

"Sec. 9. The board shall have authority to make such rules, regulations, and supplementary arrangements not inconsistent with this agreement as may be necessary to carry into effect the principles of this agreement or to apply these principles to new questions whenever they arise. It may also define, describe and limit the penalties to be imposed for the violation of any of the provisions of this agreement.

"Sec. 10. The expenses of the labor adjustment board shall be borne equally by both parties to this agreement."

III. PUBLIC PURPOSE IN INDUSTRIAL LAW

Three aspects of "public purpose" may be distinguished in the Rochester decisions: (1) primary purpose, the progress of the industry; (2) secondary or contributory purpose, stability of the market; (3) auxiliary purpose, the means of insuring stability and progress, i. e., due procedure according to law, which in industrial terms is collective bargaining.

1. The progress of the industry is what the public is chiefly interested in. Meanings attached to the expression vary with particular situations. The common elements of the ideal seem to be a minimum of waste and increasing efficiency, in order that a steady flow of goods at reasonable prices may come upon the market. *Ipso facto* the public is interested in the worker's getting fair pay for a fair year's work, i. e., as high a purchasing power as possible, consistent with protection of the employer's interest in managing business efficiently for a reasonable profit. Because the two sides together form a part of the public, the public is interested in the welfare and purposes of the two sides. It is not intended here to exalt the "public" into a separate, conscious entity demanding that these things be accomplished, for that is a controversial question outside the present task.

Experience has taught that industry does not prosper when one side or the other possesses unlimited power and uses it unscrupulously against the other. The sweatshop stage in American clothing manufacture illustrates the inefficiency of absolute employer domination; Russian industry since 1917 illustrates the same effect under workers' domination. The first step toward a progressively improving industry is the limiting of the

arbitrary use of power. The process of limitation inevitably involves a second step, the proper proportioning of the limited powers and purposes of both sides, to yield the highest net return in efficiency, wastelessness, and the welfare of both parties. Essentially this is scientific management. To the extent that the arbitrator is able to work to this end, he is the scientific manager of industry.

The decisions of the arbitrator are in themselves a denial of arbitrary use of power. In some of them the controlling factor is the arbitrator's regard for the progressive efficiency and wastelessness of industry. This is the evident intention of the ruling that loss of trade skill incident to the introduction of new machinery is no valid objection to changes, because the worker benefits from increased efficiency under specialization. (Case No. 346.) Substantially the same purpose is used against the employer in abolishing home work. The fact that doing away with home work increases money cost of operation, either through higher wages, hiring greater floor space, etc., is not a valid excuse for trying to avoid the obligation. (Cases Nos. 433-437, 658.) The industry is entitled to the better control of production and of quality which prohibition of home work brings.

A similar regard for efficiency is found in the general wage award of August, 1920, approving the principle of equalizing wages with competitive markets but denying the application of the principle. Under ordinary circumstances, the arbitrator said, the union's request to equalize wages would be a "just request," for "the intelligent and informed public opinion of America no longer considers it sound industrial policy to permit employers to seek advantage in competing with one another by getting the same kind of labor at lower

wages. . . . Competition among employers should be in efficiency of management, salesmanship and service to consumers, not in getting cheap labor. The clothing worker in one market has a right to expect the same wages and standard of living for his family that other markets where successful business is carried on, are able to pay." In the above quotation there is more than mere regard for efficiency as an end. The workers' standard of living is a recognized consideration in wage determination. The principle of reasonable competition controlling wage fixing is substantially the same regulating principle used by the courts in fixing rates for public utility services.

The refusal by the arbitrator to equalize wages, tho approved in principle, was based on general business conditions existing in August, 1920. "The conditions and prospects of business at the time that increases are given must be carefully considered." Thus the acute depression existing at the time made additional financial burdens on the industry harmful to "employer and employee alike." Recognition is here given to the integral relations between the clothing industry and the rest of the economic system. The necessity of business solvency may overrule the principle of "equal pay for equal work." High labor costs may lead to idle labor and idle factory equipment. This is regarded as a waste to be avoided, even at the cost of sacrificing an equitable principle.

The arbitrator's attitude in this case was amplified in the general wage award of May, 1921, in which the manufacturers' demand for a wage cut was denied. Nevertheless, "something must be done to lower costs and prices in order that industry may revive. . . . As an alternative to a cut in wages the Chairman is of the opinion that time workers may properly be changed to

payment by the piece. This change from a time basis to payment according to production is, in the mind of the Chairman, the most sound method of bringing industry out of the present depression. What is needed is lower costs and prices and at the same time increasing purchasing power of the people. By changing from week work to payment by the piece, the earnings of the workers would actually be increased and at the same time the unit cost of production, as experience has amply demonstrated, would be considerably reduced by increased output." The main difference between these two awards is the heightened importance given to the purchasing power of the workers and farmers. This part of the workers' bargaining power, here regarded as outweighing a direct wage cut, is the vital element in the wider principle that industry cannot thrive if the workers cannot purchase the products of industry. It is the modern version of the "economy of high wages." But back of the revival of business it may well be argued that the real reason for not limiting the workers' bargaining power in this respect is the protection of their standard of living.

Restatement of the decisiveness of managerial efficiency is found in the last general wage decision of October, 1921, which again denied a direct wage cut. However, all shops should have the "benefit of any lower costs that may come to them from efficient management. If costs are high in any shop because of lack of proper planning or management, it would be unfair to the other houses to cut wages in such a shop and thus present it with lower costs which the other shops have earned by good management." Previously the arbitrator had ruled (Case No. 386) in denying the union's request to equalize rates between two houses: "On account of different systems of working and the different

methods of management in the various houses, the same amount of effort may result in different amounts of output; so if one house has a great investment in planning, in routing, in arranging and dividing its work, the number of pieces turned out for the same amount of pay may be greater in such a house than in another which does not make such a large investment in management. To equalize rates in such a case would give to workers in the first house for the same effort much larger earnings than the workers in the second house. This would not only cause a serious and unjust inequality among the workers but it would also discriminate against a house which is progressive and trying to make improvements." Associated with the idea of giving efficient employers free scope is the principle of equal protection of the law, consideration of which is postponed (p. 286).

The arbitrator seems no less concerned with the individual contributions of efficiency to general industrial progress. In several cases involving the adjustment of rates fast workers are protected. Normally the adjustment of rates according to earnings would operate to the disadvantage of the speedy worker. So in Case No. 564 it was ruled that exceptional speed entitled workers to earnings in excess of the average earnings of average workers. In other cases it was ruled that fast workers should not be penalized by low rates (Cases Nos. 6, 264, 518). Another angle of the same intention is found in the protection accorded the piece work system in the May, 1921 award (cited above, p. 286). A direct cut in piece rates, the arbitrator said in that award, would be "most unwise because it would tend to discredit the piece work system and thereby increase costs." This, of course, is premised on the customarily faster pace of piece workers over week workers, a premise which later was given quantitative recognition in individual rate cases (*supra*, pp. 286 and Case No. 535).

The efficiency of workers is a prominent factor in discharge and discipline cases also. The attitude of the arbitrator is well shown in imposing the penalty of immediate discharge for deliberate restriction of output (Case No. 463). But the incompetence claimed by the employer must be proved (Cases Nos. 159, 279 among others). When incompetence is clearly established, (as in Cases Nos. 299 and 315) discharge is not too severe a penalty. Correlative to the worker's obligation to work efficiently is the employer's obligation to teach apprentices (Case No. 98). If, however, after due training by the employer (extending over three months in Case No. 161) the worker is still incompetent, the arbitrator justifies discharge.

In all the above instances it is clearly intended by the arbitrator to protect efficiency whether of employer or workers and to penalize gross incompetence of either workers or employers. (See also Cases Nos. 550, 552.) So too in the broader field of market policy, wage levels and costs should be adjusted to provide opportunity for, and incentive to efficiency and a decreasing wastefulness. It seems sufficiently plain that the arbitrator, within the limits of his influence, adjusts these various factors largely because an industry cannot progress by overlooking inefficiency or by discouraging efficiency in operation.

2. That industrial progress is a vain hope without a reasonable degree of stability in employer-employee relations is too patent to require proof. In the view here set forth, anarchy is potential so long as power may be used arbitrarily by one side or the other. Progress is impossible while there is anarchy. Consequently the group of cases in which the intention is to stabilize industry by limiting the respective uses of power contrib-

ute to the primary aim. Obviously stability is guaranteed by the principle of collective bargaining, but for purposes of analysis collective bargaining is treated more as a means to stability than as an end.

It is essential to stability to have both parties strong enough to perform the obligations imposed on them by the agreement. At the same time the continuance of the agreement is the guarantee against either side becoming so strong as to impose its arbitrary will on the other. For that reason the arbitrator is faced in almost every decision with a choice of alternatives: either to sanction the use of power by one side and perhaps force the other to scrap the agreement, or to limit the use of power and continue the agreement unviolated. Illustrative of this choice are three decisions in which the principle of preserving the agreement seems uppermost.

(a) In Case No. 149 the arbitrator supported the employer's refusal to discharge a union worker who had been disciplined by the union for not paying his dues. "There is no question that the union must have power to discipline its members. If it cannot do that then it cannot force them to live up to agreements made by the union with employers. However, in meting out discipline to its members the union must do it according to the laws of its own organization. It can fine them, reprimand them, suspend or expel them and impose any other penalty authorized by the union's constitution and by-laws which they agreed to obey. But to make suspension by the employer a penalty imposed by the union, is going beyond the union's power of discipline and asking the employer to act in the union's place. The employer is therefore within his rights in refusing to take any such action."

(b) A year later in Case No. 451 the arbitrator did not support the employer's refusal to discharge a suspended

union member. Pointing out that the union had exercised full disciplinary power short of striking the shop where the delinquent member worked, the arbitrator continued: "Since the agreement ties the hands of the union in this respect [stoppages], it must afford to the organization a legal method of enforcing its just disciplinary measures which will be as effective as the refusal of its members to work with an expelled member. . . . Unless such a legal method of enforcing disciplinary rules is provided, the agreement would have the effect of weakening the union, members could defy the organization with impunity, and the attempts of the Labor Adjustment Board to hold the union responsible for compelling its members to live up to the provisions of the agreement and to the decisions of the Impartial Chairman would be futile."

The only technical difference between the two cases was: In the first case the union imposed a penalty of fine and suspension from the shop *before* suspending the worker from the union; in the second case the union *first* suspended the worker from the organization and then asked the employer to discharge. Practically the principle of employer's discipline of delinquent union members was the same, the arbitrator reversing his former decision in the later case.¹

There are several pertinent circumstances surrounding the two cases. The first decision was rendered on June 1, 1920 while negotiations for a new agreement were pending, whereas the second decision was made May 26, 1921, in the middle of a two-year agreement and on a falling market. Furthermore at the time of the second decision an election of business agents and joint board of the union was taking place. Moreover the

1. The judicial precedent established in this decision was incorporated in the May, 1922, agreement: "Sec. III. The employer recognises the obligation of workers who are members of the Union, to pay their Union dues."

union was trying to clean up a special assessment for the benefit of its New York members on strike.

What were the possible alternative effects, if the decisions had been otherwise? On June 1, 1920 the manufacturers were well aware of the approaching depression and might have considered that freedom from the limitations imposed by an agreement was worth exposure to direct action by the union. Conceivably the manufacturers might have refused to negotiate a new agreement, if the arbitrator had forced them to discharge the union worker. In the second case the decision as rendered strengthened the hands of the more conservative union officials against a radical minority. A contrary decision would probably have strengthened the hands of the less constructive unionists in the election and would have allowed union workers to defy the organization to collect the New York assessment.

In the face of the possible alternatives the intention of the arbitrator in both cases was distinctly to keep the agreement a going concern. Consistency of principle was worth sacrificing for the continued effectiveness of a contract which insured stability and opened up possibilities for orderly progress. The reasoning in these two cases has its counterpart in two stages of law. Since there was nothing in the basic law covering employer discipline of union members, the arbitrator gave a strict construction to the law in the first decision, illustrative of the strict Roman law tradition. But in the later case a loose construction was given, comparable to the present common law with its concept of sociological purpose.

(c) Cases Nos. 327 and 335 have to do with stoppages protesting against alleged New York strike work. There is nothing in the agreement specifically covering such questions as strike work, but the arbitrator assumed jurisdiction despite the protests of employers, on the

ground that under the agreement all disputes must be submitted to arbitration. On the principle of the case the arbitrator sided with the union in holding that strike work was not permissible under the agreement, because otherwise union members would be forced to work for their own destruction. On the facts of the case the arbitrator found that the employer had accepted a *bona fide* retail order, not technically strike work. However, since piece goods were received from a retail concern in which the "struck" New York firm had a financial interest, the workers suspected the good faith of the employer. To avoid the possible consequences (stoppages or restricted production) of such suspicion, the employer should return that part of the order not already started in process.

Here is another indication of a loose construction of the agreement. Technically the employer acted in good faith; practically the workers suspected the employer's good faith. The arbitrator faced the choice (1) of sanctioning the order and potentially demoralizing production and perhaps forcing the union to break the agreement, or (2) of invalidating the order and potentially forcing the employer to break the agreement. In ordering the union to finish out work already started, and the employer to return the rest of the order, the arbitrator compromised the technical principle for the preservation of the agreement.

Considerable space has been given to the above three cases because they show in clear-cut fashion the process of power limitation, the actuating purpose of the arbitrator, and two legal stages (strict law and common law) in the development of the Rochester agreement. The same sort of analysis might be applied in other cases. It will suffice to indicate certain groups of cases where such analysis would be significant.

All the cases making tenure of jobs more secure for the workers help to strengthen the union and thereby stabilize the industry. The restriction that no discharge is legal without just cause, that work should be divided during slack times, that changes in management or manufacturing processes should not cause "suffering" to the workers, that no semblance of a blacklist should be tolerated, may all be viewed from the angle of stabilization.

One of the best examples of this purpose is the tendency to standardize wages. The August, 1920 award expressly considered standardizing wages in line with competitive markets. The May, 1921 award stated the principle: "Neither justice nor sound industrial policy can justify holding wages to reasonable levels by arbitration machinery in the interest of industrial stability on a rising market and then when the market falls not using the same machinery to safeguard the workers' standards of living." So too in the adjustment of wage rates, the arbitrator ruled in Case No. 386: "The general rule in considering cases of serious and unjust inequalities as well as in fixing piece rates has been to use the earnings of the workers as the primary consideration and not the rates. No other rule can be followed because rates in no two houses are the same and the work in different houses differs so that, if rates in all the houses were equalized, it would result in very different earnings in different houses for workers of practically the same skill. The main purpose of the parties to the agreement in fixing wage levels for the market is to secure substantially the same earnings for workers of equal skill and who exert about the same amount of effort in various houses." The same purpose is back of the establishment of standards of production for week workers who are paid a definite scale of wages.

The use of direct action by either party is such a flagrant example of instability that the repeated penalizing of such tactics reinforces the arbitrator's purpose. This applies not only to organized group stoppages and deliberate lockouts but to individual quitting without notice. In holding the union responsible for seeing that the week's notice is lived up to, the arbitrator is protecting the market against lost production, high turnover, and other wastes attributable to unstable relations between employer and employee.

The essence of stability guaranteed by law is equal protection of the law. This means a denial of unwarranted privileges. The inequality may be between employer and union (as in the May, 1921 award), between two groups of workers or between individual workers. The substance of inequality may be in almost any field of industrial relations.

The notion of equal protection is implied in a discharge case (Case No. 194) in which the arbitrator stated: "If a workman can refuse to go to the labor department to adjust some difficulty, then the employer would have the same right to refuse to listen to complaints because he loses valuable time thereby." In another discharge case (Case No. 656) a worker was reinstated despite violation of the rule against smoking in the shop, because that rule was not regularly observed by the contractor himself. In yet another discharge case (Case No. 122) the arbitrator observed: "The right to discharge during the first two weeks must be limited by the spirit and purposes of the agreement. If this right were held to be absolute, so that an employee who has done nothing wrong, and whose work is satisfactory to the employer, may be discharged at the instigation of other employers, then a blacklist of the worst kind would be legalized. At the same time the

right of the Union to tell its members where they may or may not work would also have to be considered an absolute right, so that it might keep workers from going to certain factories and thus tie up shops as effectively as if a strike were called." This contingency became reality in Cases No. 798 and No. 804,² wherein the firm complained of a boycott by the union making it impossible for the firm to replace a section of workers who had been discharged on account of a stoppage. "This series of events illustrates clearly the futility of either party to the agreement trying to right grievances and violations of the agreement by their own actions alone rather than by using the machinery provided for this purpose. This stoppage like all others was a violation of the agreement. Practice as well as specific decision of the Chairman (Case No. 244) has recognized that discharge might be imposed by an employer for such violations. But such procedure sooner or later was sure to lead to such a situation as in this case. Union members, seeing a firm deal on its own responsibility with a grievance consisting of a violation of the agreement, take into their own hands the correcting of their own grievances, whether violations of the agreement or not. The only sure way to avoid such action is to have all violations of the agreement brought before the impartial chairman to be penalized except where the agreement provides specifically for another method."

Similarly in questions of wages and production the employer is entitled to equal protection of the law with the union. Thus in Case No. 264: "Just as the Chairman has in several cases corrected errors when the rates proved to be too low after a trial so he must correct rates when after a trial they prove to be too high." And in Case No. 525: "Once a standard of production is

2. *Supra*, footnote, p. 271.

agreed upon, neither side has the right to change it without consent from the other."

The application of equal protection of the law between individuals and groups of workers is well illustrated in the rate-fixing rule cited above (Case No. 386, p. 278). It is also apparent in division of work (Case No. 288): "There is nothing in the agreement to force the employer to adopt any one method of dividing work. As long as all the pressers are assured an equal amount of work they are not injured no matter what method of division the employer uses. The management must be free to adopt the most economical and efficient methods of division, and the workers have no just cause for complaint as long as they get an equal amount of work." A somewhat incongruous harking back to custom as the source of law is found alongside a statement of the equal protection principle in Case No. 644: "It appears that the union has not heretofore contested the practice of paying women less than men on scaled operations. This has been an accepted practice on the assumption that women do not produce as much as men. If a standard were fixed and the woman's production equalled the standard, she would be entitled to the scale."

3. Closely allied and interwoven with the concept of due purpose as progress and stability is the notion of due procedure. In many respects the protection of the collective bargaining principle is the heart of "public purpose" in industry. It is the means of insuring stability and progress. The arbitrary use of power requires no set procedure; whatever works is legitimate. The limited use of power lays down rules of procedure, i. e., no bargaining without representation. Whereas the courts tend to allow modification of procedure according to the purpose in view, the industrial arbitrator

tends to identify procedure with "public purpose." Analytically, however, the two are separable as the means is distinguishable from the end.

It is unnecessary to cite many instances of maintaining the collective bargaining principle of the agreement. In one case (Case No. 152), for bargaining individually with one worker of a section, a contractor was penalized by an increase of the piece rate for the entire operation. In another instance (Case No. 179) a fine was imposed on a contractor who refused to deal with a business agent of the union or with a representative of the employer. In numerous cases (Cases Nos. 281 and 525 among others) it was held that a standard of production for week workers cannot be established legally except by mutual consent of the two parties to the agreement. The repeated attempts of the arbitrator, not recorded in decisions, to avoid making a decision until all efforts at collective negotiation have failed, bear witness to the important place of collective bargaining in the notion of "public purpose."

IV. CONCLUSION

A final appraisal of the tendencies outlined above is a task for the future. In industrial relations the function of law is the same as in wider relationships—the limiting of powers and the formulating of rules of procedure safeguarding order and progress. The law is a "progressive science," the Supreme Court said in the *Holden v. Hardy* case.³ If this be true of industrial law also, then it is no accident that the principles of industrial arbitration group themselves in legal categories of due purpose, due procedure or due process. For these legal categories are the vehicles for making over the law from a preserver

3. 109 U. S. 366 (1898).

of the *status quo* to a dynamic force, such as is essential to keep pace with, and at the same time restrain, the antagonisms of power between employers and employees.

This is the justification for treating Rochester's experience as a step in the up-building of a structure of law in industry coexistent with that of state and federal courts. And not only is it coexistent, but it appears similar in form, content, purpose and function. Withal industrial law remains independent of and unrecognized by public courts. This would seem its destiny, were it not for two recent court decisions. In December, 1921, the New York Supreme Court granted a temporary injunction restraining the Cloak, Suit, and Skirt Manufacturers' Protective Association from breaking its agreement with the International Ladies' Garment Workers Union.⁴ In June, 1922 the United States Supreme Court in the Coronado case⁵ put trade unions, tho unincorporated, on the same legal footing with corporations. Whether these two decisions may be construed as affording a basis for enforcement by the courts of collective trade agreements (contracts) between unions and employers, cannot be predicted. If that should be the turn of events, however, these two decisions may be considered an opening wedge, a first stage in the gradual absorption of the common law of industry into the common law of the land.

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4. Monthly Labor Review, vol. xiv, pp. 217-20 (Jan., 1922).

5. United Mine Workers et al. v. Coronado Coal Co., 42 Sup. Ct. 170 (1922).

HIGHER AND LOWER DESIRES

SUMMARY

Consumption may affect capacity for production. — Satisfaction may be increased by increasing goods, or desires for available goods, 292. — Unsatisfied desire an evil, 293. — Definition of necessities, 297. — Desire for them ultimately diminishes scarcity, 298. — The time element, 298. — The interests of other people, 299. — High desires increase efficiency, foresight, and altruism, 300.

PROFESSOR KNIGHT has lent his authority to an attack on the "pleasure philosophy."¹ Without for a moment challenging the completeness of the overthrow of psychological hedonism, or venturing to dispute the soundness of the greater part of Professor Knight's argument, I should like to question that aspect of his case in which he states that "If the Good is Satisfaction, there are no qualitative differences, no higher and lower as between wants, and that is better which is smaller and most easily appeased" (page 457), and the further statement that "the pursuit of 'higher things' and the crasser indulgences are alike failures if the test is happiness" (page 470).

It would seem to the present writer that these statements overlook the fact that man himself is a contributing cause to his own satisfaction; and that satisfaction is not necessarily a final effect, but an effect which may bring in its train ulterior effects on man's capacity to create further means of satisfaction. If the problem be expanded to allow due weight to these circumstances, it is submitted that the adoption

1. F. H. Knight, "Ethics and the Economic Interpretation," *Quarterly Journal of Economics*, May, 1922.

of Happiness or Satisfaction as the supreme end does not obliterate the distinction between higher and lower desires, but on the contrary suggests a principle for distinguishing between them.

The question seems to turn, in the first instance, on the existence of a distinction between *number* of wants or desires satisfied and the *degree* to which they are completely satisfied.

The issue may be best presented in concrete form. Let us ask, first, is a man with three houses to live in necessarily more happy than a man with two? It would seem clear that he is so if the desires of both men are the same — if both would be unsatisfied with less than three. Suppose, however, that their desires are unequal, so that the man with only two houses has no desire for a third. In that case the *degree* of satisfaction would be the same for both — both would be satisfied completely. Is it not the case, however, that the man with three houses has a greater *quantity* of satisfaction than the other?

Let us test this question by considering the means of increasing satisfaction. Suppose one man desires three houses and possesses only two. It will hardly be disputed that his acquisition of a third house would constitute an addition to his satisfaction. But take the converse case. Suppose a man has three houses and desires only two (it being assumed, of course, that it would be impossible to exchange the third house for anything else that he does desire). Would it not increase his satisfaction if he were to acquire a new desire which the third house could satisfy?

It is the view of the present writer that satisfaction is a conception of two dimensions, degree and quantity, and that we can increase our satisfaction either by increasing the quantity of things capable of satisfy-

ing the desires we have, or by increasing such of our desires as can find satisfaction in things which are available.

The further question arises: what would be the effect on satisfaction if a man who could by no possibility ever have more than three houses were to acquire a desire for a fourth?² It would seem clear that this would constitute a diminution of his satisfaction; in other words, a dissatisfaction. There even seems no reason why such a dissatisfaction should not be susceptible of quantitative expression (tho not, of course, of exact measurement) in the same way as satisfaction.³ Thus, if a person should acquire an unsatisfied desire for a fourth house, a deduction would have to be made from the quantity of satisfaction afforded by the enjoyment of three houses in order to ascertain how much *net* satisfaction he derives from the possession of them.⁴

2. In this and several other instances in the present paper I am under obligation to Professor Carver for helpful criticisms and suggestions.

3. Let the accompanying diagrams represent the desires of *A* and *B* for houses, intensity of desire being measured along *OY*, and number of houses along *OX*. My view is that where desires are completely satisfied, that is, where the curves of diminishing intensity are represented by *YA*, *YC*, quantity of satisfaction is represented by the areas *OYA*, *OYC*. If desires are incompletely satisfied, that is, where the curves are represented by *YBX*, *YDX*, intensity of desire for an additional house is represented by *AB*, *CD*. In this latter case, the areas *ABX*, *CDX*, represent dissatisfactions. Consequently, the net quantity of satisfaction would be represented by an area determined by deducting *ABX* from *OYBA* in diagram 1, or *CDX* from *OYDC* in diagram 2. In all cases the degree of satisfaction is represented by the vertical lines *AB*, *CD*, the absence of which would indicate that satisfaction is complete.

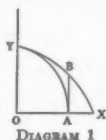


DIAGRAM 1

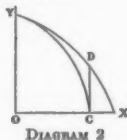


DIAGRAM 2

4. The line between unsatisfied desire and positive pain is in all cases hard to draw. Is not, for instance, a toothache necessarily accompanied by a desire for the ministrations of a dentist? Pain in its very nature would seem to be accompanied by a desire for its cessation.

Similar reasoning would suggest that boredom is an unsatisfied desire accompanied by ignorance as to the object, if any, which would satisfy it. Objections to this statement based on the psychological analysis of Desire would seem to apply rather to the use of the word desire than to the theory itself.

The degree of intensity of our unsatisfied desires for things additional to those which we possess is worth consideration, because it measures the intensity of the exertions we should be willing to make to add to our supply of those things; just as our struggles to avert acute suffering will be more violent than those to escape from a trivial discomfiture.

It would seem safe to conclude that it is mere cruelty to arouse a desire which can never be satisfied. It is, however, a service to arouse a desire the means for the satisfaction of which already exist or are easily acquired. To complete this part of the reasoning, therefore, account should be taken of the *satiability* of a desire as well as of its intensity. The maximum condition of satisfaction would be achieved if desires for the first increment of any commodity are as intense as possible, but desires for additional increments diminish at such a rate that the total desire is completely satisfied by the quantity of the commodity which it is within the individual's power to acquire.

If this reasoning be sound, we arrive at once at a provisional basis for classifying desires according to their worth. The first and simplest instance of a high or worthy desire would be a desire for free goods. In economics as well as superficially people get more out of life if they can derive enjoyment from the contemplation of a beautiful sunset; if they can appreciate the pictures in the free art gallery, or can listen with pleasure to the morning lark or the municipal band.

Nevertheless, this distinction would not appear ultimate, and indeed would lead to very trivial and absurd results in specific applications. Why, for instance, should a desire for wild raspberries be "higher" than a desire for the garden variety? In some instances this criterion

might even rank as higher those things which are cheap rather than dear, and might tend to identify "high" with "coarse" — a result which would arouse at least a suspicion of some profound inadequacy in the theory.

Another instance, however, will bring us within hailing distance of a more satisfactory distinction. Why is it that certain desires, such as those for intoxicants and the excitement of gambling, are by most people classed as "low"? Would it not be a legitimate answer that the indulgence of such desires is likely to lead to a deterioration of character? It might, of course, be objected that to attempt to evaluate desires in terms of character is to explain one thing in terms of something else which is equally obscure. This difficulty, however, would not exist for the economist as such, for he could define character as meaning personal efficiency, or capacity for labor; so that his answer to the main question would be expressed by the proposition that the highest desires are those the satisfaction of which adds most to the capacity for labor.

It is not the purpose of the writer to attempt to review other theories. Some notice, however, seems required with regard to one of them; namely, that of Herbert Spencer, according to which the continued life of the species is "the end to which all other ends are secondary, for if the species disappears all other ends disappear."⁵

It would seem a fair comment on this statement that both life and other ends along with it had better disappear if, on the whole, life is productive of more dissatisfaction than satisfaction. Indeed, this would seem to be Herbert Spencer's own view, for he writes: "There is one postulate on which both pessimists and optimists agree. Both their arguments assume it to be self-evi-

5. Principles of Sociology, vol. i, p. 591, sec. 273.

dent that life is good or bad, according as it does, or does not, bring a surplus of agreeable feelings." ⁶

If, then, there are circumstances under which the tendency to promote the increase of life is not a satisfactory criterion, the question arises, why should it be adopted at all? If it be admitted that children who are inevitably condemned to drag out an existence of unending misery had better not be born, is the case substantially altered if the effect of their addition to the population in any community is to reduce the wealth or happiness which the average individual in that community can enjoy? Conflicting tendencies must be taken account of here. If the population of a country is too small, its inhabitants may expose themselves to the danger of aggression owing to their military weakness, and they are bound to sacrifice the advantages of some intellectual stimulation and of the division of labor. On the other hand, if the population becomes too large, the law of diminishing returns will operate with such force that average wages, and ultimately average incomes of all sorts, will necessarily become smaller. It would seem that the most desirable number to have in a country is where a balance is struck between these two opposite dangers, and that an increase of life is desirable only where the life already existing is insufficient to attain this standard. But to hold this is to adopt satisfaction as the fundamental criterion. If, however, satisfaction is the criterion, it follows that a high desire is one the satisfaction of which increases the means of satisfaction; in other words, increases capacity for labor.

The term labor must not, of course, be restricted to merely physical exertion. Its purpose is the satisfaction

6. Data of Ethics, sec. 10. "No school," he adds, "can avoid taking for the ultimate moral aim a desirable state of feeling called by whatever name — gratification, enjoyment, happiness." Ibid., sec. 16.

of desires; and from one standpoint we can say, the more desires satisfied, the more labor has been performed. It normally involves, however, some irksomeness on the part of the laborer, which is the important element from his point of view. Capacity for labor, therefore, could be said to be increased when a laborer becomes able to cause a greater amount of satisfaction (that is, becomes able to satisfy more numerous or more intense desires), consistently with undergoing a given amount of dissatisfaction.

Professor Knight further doubts "whether the conception of necessity can even theoretically be defined in sufficiently objective terms to make it available for scientific purposes" (page 462). It is, of course, to be conceded that there can never be a sharp dividing line between necessities and luxuries. Yet surely such a dividing line is not required for scientific purposes if a real distinction exists between extreme examples of the two classes. The present writer has declared his adherence to the view that the same distinction as that here drawn between higher and lower desires can be applied — that necessities may be defined as goods and services the consumption of which increases capacity for labor.⁷

If such a distinction can be applied to commodities and services — to income in Professor Irving Fisher's sense — there would appear no reason why it might not also apply to leisure, or the ways in which he spends the time which he does not devote to labor.

From such a definition of necessities it would follow that to increase the desire for them would always tend to increase satisfaction in the long run. For increased desire would mean increased motive for exertion to procure them. This, other things being equal, would lead

7. *Quarterly Journal of Economics*, February, 1919, p. 298.

to a greater supply of them, which could only be for the purpose of consumption, involving increased satisfaction. This would further result, from the definition of necessities, in greater capacity for labor, or the ability to produce greater means of satisfaction without undergoing increased dissatisfaction in the process.

It is to be noticed that the time intervening between the consumption of any particular necessary and that at which it is likely to issue in increased satisfaction through increasing capacity for labor is different in different cases. A cup of strong coffee may keep us awake till we have finished an evening's work. Bread and roast beef will stave off hunger for half a day, besides enabling us to resist the temptation to eat food that might be bad for our digestion. A useful textbook may enable us to do our routine work better, and perhaps increase our skill for years. But the reading of a great piece of literature may inspire us with ideals and motives to direct our conduct more wisely and to higher purposes for the whole of the rest of our lives. The influence of any particular book — or picture, or musical composition — may be so remote and indirect as to be altogether untraceable. But such influences as these are the really important things in life, for they determine our desires, and consequent capacity for turning our attention to things of more immediate utility. Like the waves caused by a stone thrown into a pool of water, they decrease in perceptibility as they become more remote from their origin. But the circumference of the circle, and hence the extent of their effects, increases in greater ratio than the distance from the centre.

This, then, is the first criterion which is proposed for distinguishing between high and low desires. Low desires are those for objects the consumption of which

diminishes capacity for labor. Neutral desires are those for objects which have no harmful effect, but which increase capacity for labor either not at all or only for short-run periods. High desires are those which can be satisfied only by objects which increase efficiency in the more or less distant future, improving the physical and psychological equipment of the race. The more this is the case, the higher is the desire.

In what precedes the individual has been considered as an isolated unit, without relation to his fellows. As a member of society, however, he must be considered under aspects which suggest a different class of considerations.⁸

In consumption, not only must the individual's satisfaction be considered, but also the extent to which he diminishes the satisfaction of others by consuming any particular object. From this standpoint, those desires would be preferable which could be satisfied by common as opposed to exclusively individual consumption.

In production, not only must capacity for labor be considered, but the individual's willingness to expend his labor for the benefit of others. So far as these others are in a position to render an equivalent, there may exist a selfish motive to labor for their benefit, thus bringing this case under that first considered, except that the individual must have a motive to abstain from predatory methods of extorting or enhancing the equivalent. So far as others are not able to pay for the goods and services they receive, anyone's willingness to furnish them will depend on what must be called his altruism, or capacity to derive satisfaction from the welfare of others.

At any given time, of course, this altruism is a ques-

8. In this connection I should acknowledge my indebtedness to my colleague, Professor John MacDonald, of the Department of Philosophy in the University of Alberta.

tion of fact, not to be implanted in the breast of any person by the mere admonition that he ought to display it. But there are other influences, operating chiefly through literature or other forms of art, and religion, that have the most powerful effect in fostering the growth of the altruistic character, and surely the desires for such things are the very highest of all. Again the criterion is the extent and permanence as well as the intensity of the altruistic desire produced by the satisfaction of the desire whose worth is in question in the particular case.

If one's activities are consciously directed towards increasing efficiency, this implies that the future is visualized, for satisfaction can be increased by this means only after an interval of time. In other words, a person, family or nation which devotes energy or resources to education is thereby (except when they are under compulsion, or merely imitating someone else) proved to have foresight. Now, the ultimate interests of different persons are more nearly identical than their immediate interests are, yet even with respect to ultimate interests some conflict may arise. Altruism, therefore, is distinct from foresight, and the question arises whether or not the above criteria depend on any common principle. From one standpoint, they would appear to do so. "The present self," writes Professor Carver, "appreciates the interest of the future self according to a law quite analogous to, if it be not the same law as that according to which it appreciates the interests of others."⁹

From this starting-point, it would seem that an all-embracing formula can be developed. If labor is to be measured in terms of dissatisfaction, a taste for labor

9. *Essays in Social Justice*, chap. iii, p. 71; see also his *Principles of National Economy*, chap. ii.

must, as already pointed out, be included in the conception of capacity for labor. But the amount of labor which any person will perform depends not only on his efficiency, but on his willingness, or motives, as well. But — again to quote Professor Carver — “the more nearly a desire comes to being satisfied, the weaker it becomes, and the weaker the motive to action.” Consequently, every person will have stronger motives to action, or willingness to labor, if his desires extend to the future as well as the present. He will likewise have his motives or willingness increased if he desires the welfare of others besides himself. Foresight and altruism thus have a common characteristic: they increase the willingness to labor; and both are material in an attempt to estimate the worth of a desire.

The conclusion, therefore, is reached that a high desire is a desire for a commodity, service, or occupation the enjoyment of which will have the collateral effect of increasing capacity for labor, or willingness to labor not called forth by immediate and selfish desires. A low desire, on the other hand, is one the satisfaction of which will have the opposite effects.

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THE NEW TAX SYSTEM OF GERMANY

SUMMARY

I. The general situation.—Compromises between parties, 307.—II. The several taxes; tabular view, 309.—Income tax, 309.—Property tax, 315.—Inheritance tax, 316.—Other direct taxes, 320.—Provision for currency depreciation, 324.—Taxes on property transactions, 325.—III. Taxes on consumption; the sales tax, 328.—Analogous taxes, 331.—The older consumption taxes, 335.—IV. Conclusion, 337.

I

On April 8 and 12 and on July 20 of 1922 there were promulgated eighteen tax laws enacted by the German Reichstag. These laws relate to the taxes listed in the classification on page 303.

By means of these laws¹—the consummation, in a sense, of a legislative program inaugurated in 1919—the German Republic has carried out the provision of the Treaty of Versailles² under which, in general, the German scheme of taxation is to be “fully as heavy proportionately, as that of any of the foremost states which were victorious in the World War.

It is, of course, at present impossible, for a number of reasons, to make a thoroughgoing comparison with other countries or even to determine the total amount of the

1. In addition there is an extensive body of legislation that for the first time confers upon the Commonwealth as a whole a tax administration of its own (whereas up to this time the administration of the national taxes had been exclusively within the jurisdiction of the individual states). This legislation, of great importance in itself, is, however, excluded from the scope of the present article. The most important of these enactments are the following: national tax regulations of December 13, 1919; state tax law of March 30, 1920; act prohibiting the evasion of taxation, of July 26, 1918; act prohibiting the concealment of capital, of December 24, 1920.

2. Pt. VIII, Annex II, § 12b.

CLASSIFICATION OF THE TAXES

- * Property.
 - * Property increments.
 - † Sundry juristic bodies — companies, associations, etc. (*Körperschaftsteuer*).
 - * Property transactions (*Kapitalverkehr*), namely:
 - Floating of joint-stock companies (*Gesellschaftsteuer*).
 - Issues of securities.
 - Stock exchange transactions.
 - Managers' percentages (*Tantiemen*).
 - Sales (including advertisements, luxuries, etc).
 - Coal.
 - * Forced loan.
 - Incomes.
 - † Inheritances.
 - * Wine.
 - * In the form of an independent law.
 - † Supplementary law with governmental authorization to promulgate a new formulation of the entire law.
- The other items are embraced in supplementary laws.³

- Consumption, namely:
 - Illuminating materials.
- † Beer.
- † Mineral water.
- Tobacco.
- † Colonial produce (customs duties).
- Sugar.
- * Saccharine.
- * Betting at races; lotteries.
- * Motor vehicles.
- * Insurance.
- * Brandy monopoly.

tax burden. Germany's international intercourse in the field of letters, interrupted so suddenly eight years ago, has not yet been restored: the war-time blockade has been followed by an exchange blockade. No German scholar today possesses that degree of familiarity with the latest tax laws and tax literature of the most important countries of the world which distinguished Adolf Wagner. Moreover, the relative distribution of

3. Any detailed account of the supplementary laws would be of little service to the foreigner. The full text of the enactments marked * and † is found in the *Reichsgesetzblatt*. Short extracts from the more important laws (designed especially to meet the needs of university courses) are to be found in my textbook (VI) entitled *Finanzen* (now published by Carl Heymanns Verlag, Berlin; second revised edition, 1922), henceforth cited as "T." When more detailed treatment calls for reference to the general aspects of the German tax system, I shall, as a rule, content myself with a reference to my book *Gut und Blut fürs Vaterland*, Berlin, 1917; abbreviated "G. und Bl."

national and municipal functions is not the same in all countries; so that it would be possible to give a comparison of only the sums of the taxes in the two cases. The municipal taxes have not yet been reorganized in Germany, and in the states (which in Germany, as in the United States, occupy an intermediate position) such a reorganization has only just begun. Finally, it is an undisputed principle of the science of finance that the burden of a system of taxation cannot be ascertained by reference to a single tax, but only in the light of the scheme of taxation as a whole. If one were to demand that every tax should be levied at the highest rate imposed by any of the victorious nations, the absurdity of the proposition would be very quickly apparent. It is possible to impose on a man a total burden equal to that borne by anyone else. But if the attempt were made to make him carry as great a burden on his shoulders and back, attached to his belt, and in both his hands, as the most heavily burdened person is charged with in each of these five places, he would necessarily collapse, even if he possessed the maximum strength and patience. But this comparison of the total burden of taxation — the only one that is scientifically admissible — cannot be made by reference to tax rates, but only by reference to tax yields; a year or two will be required before these figures are available for a comparison of the different countries.⁴

It is still difficult to secure even a strictly German estimate, made for budget purposes, of the productivity of the tax system under consideration. The question whether, by means of this system, the budget can be made to balance or not, in a country whose currency is depreciating, cannot be correctly answered in terms of

4. This is not intended as a disparagement of the objections which even in that case are raised with reference to such comparisons; the same per-capita quota may be easy in England and intolerable in Turkey.

financial science: the significance of the figures undergoes a transformation even while the printer's ink is drying. Nevertheless, the estimates for the beginning of the fiscal year (April 1, 1922) reveal at least the proportions of the situation.

According to these figures, the widespread assumption that the difficulties of the German budget are essentially due to the large appropriations for state enterprises or to the extravagance of the excessive administrative personnel of the commonwealth is without foundation. The postal deficit and that of the national railroads in the regular budget have been met. And even tho, in the extraordinary budget, 19.5 milliards of marks required for state enterprises failed to be provided for, this does not essentially modify the fact that almost the entire national appropriation, to the amount of 226 milliards of marks, is devoted to the reparations budget. A total of 126 milliards of internal expenditures is set over against an annual war contribution of (up to the present) 226 milliards. The state enterprises are not considered in these figures; they are treated in the gross budget, and in the end have to be entirely balanced in an extraordinary budget. The other administrative branches will also have to be conducted on a more economical basis. (The undue expansion of the official personnel in certain departments dates in part from the time of the demobilization of the army.) But to save out of the sum of 126 milliards allotted for internal expenses enough to cover an annual tribute of 226 milliards is a task which not even the most ambitious economic expert would undertake. The real import of the new German tax system, then, is to balance the budget by raising the amount of the annual tribute; tho it is not yet possible, so long as the maximum amount of the war contribution has not yet

even been determined, to judge of the adequacy of the productivity of this system of tax laws.

But in spite of all these reservations and qualifications, a survey of the new German tax system is, in a general way, of interest, at the present time, from the standpoint of financial science. There is, first and foremost, what natural scientists call the morphological significance: the significance of the tax forms in themselves, as financial potentialities, as heuristic principles, of interest to every student of taxation, considered not only each by itself but also from the standpoint of their connection as interrelated factors. For a nation to think out a fundamental revision of its entire system of taxation is in itself a phenomenon of rare occurrence. And the fact that the result of this process of thought should manifest itself in such a wealth of tax laws enacted simultaneously, can scarcely find a parallel in the financial history of any other nation or age. Wherever, during the immediate future, tax reforms are undertaken (and in Europe, at least, most countries will find such reforms necessary), this collection of enactments will offer a series of precedents which cannot be lightly disregarded.

The proper organization of our survey demands primarily an appropriate grouping of the factors. The sequence indicated above, taken from the official publication of the laws of the commonwealth, is a mere parliamentary accident. The customary distinction between so-called "direct" and "indirect" taxes has long since been abandoned as untenable from a scientific standpoint. But even the classifications recognized as scientifically correct by modern textbooks are totally inadequate in dealing with the nature of this legislative program. It can be understood only by grouping the taxes in accordance with the rela-

tions which were present in the minds of the legislators themselves.

The new tax system arose from a compromise, universally known in Germany as the "tax compromise." But this is something different from what are commonly understood in parliamentary circles as tax compromises. Ordinarily a line is to be drawn here between an administration making large demands and a legislature willing to make only small concessions. But in this case one of the presuppositions underlying the position of the two parties was the determination to extract the maximum amount possible. The question at issue was at what points the pressure was to be applied. After it had been found, under the liberal régime established during the years 1866-71, that the old democratic idea of meeting public expenditures, as far as practicable, by levies on income, could not be at once realized, it became possible subsequently to relegate this conception to the background to such an extent that government circles came to adopt, as a sort of dogma, the theory that the empire must leave this species of taxes to the individual states and have recourse itself to so-called "indirect" taxes.⁵ The needs of the time now came to the assistance of the democracy and the social democracy, and won over to this side the strongly particularistic Roman Catholic-Centrum party (to which the then chancellor, Dr. Wirth, belonged). The German Popular party (regarded as the representative of "big business"), which occupies an intermediate position between these three administration parties and the conservative opposition of the German Nationals, declared that it could approve such a burden of taxation on the property-holding classes — one so strongly opposed to the entire course of the history of national taxation and,

5. G. und Bl., pp. 110-112, 292 (which gives additional citations).

moreover, operating so drastically at the very outset — only on condition that a heavy super-tax should be imposed on the consumption of the masses, as an auxiliary source of revenue. The Social Democratic party, as a result of possessing the necessary self-control to pay this price for its old ideal of a strongly progressive income tax, has not only not lost its following among the working classes, but the detached left wing of the Independents (*U-Socialisten*) has just now returned to it. At the same time, its concession served to appease the reactionary wing of the Centrum. And thus was achieved a measure from which only the extreme right and the extreme left (the German Nationals and the Communists) held aloof. A further practical refutation of the doctrine of the *impôt unique*: the maximum amount of revenue was to be extracted by a multiplicity of taxes.

These conflicts show clearly the tendency toward a twofold division: (A) taxes on income and property; (B) taxes on consumption. Since it is universally assumed that excise duties fall chiefly on the "propertyless classes," and since, accordingly, group A is depended on to effect the heavier taxation of the "property-holding classes," it is often the custom in Germany to use simply the contrasted terms "property" and "consumption." It must, however, be remembered that both the full and the abbreviated designations, as well as the sense of the antithesis in general, are to be taken *cum grano salis*. And this not simply because the so-called propertyless classes pay income taxes (and even property taxes), and because the property-holding classes, of course, pay taxes on articles of consumption. Among these excise duties are, no doubt, everywhere to be found certain taxes whose prime purpose is to constitute a levy exclusively upon the consumption of the

well-to-do; and history shows frequent cases in group A of the levying of corresponding taxes⁶ on the "property of the propertyless classes" without any sense of contradiction. This classification into groups is, accordingly, offered merely as an aid to better orientation.

II

For the convenience of the reader, a tabular view of the whole series of taxes is appended. To the numbers in this conspectus reference is made as the several taxes are discussed in the following pages.

(1) and (2). At the head of group A — and, at the same time, at the head of the entire system of taxation — we find the two tax measures which serve the common purpose of reaching the income of natural persons and of corporate bodies: namely (1) income taxes and (2) taxes on juristic entities — companies, associations, etc.⁷ The former is a progressive tax, based on a series of "brackets" (*Durchstaffelung, progression par tranches*)⁸ which, in the lowest brackets, commences at 10 per cent, progressively increases, and appropriates 60 per cent of the portion of incomes exceeding three million marks. While the latter is a proportional tax, it distinguishes, nevertheless, between companies for industrial purposes and other corporate bodies (institutions, charitable foundations, associations of all sorts, dedicated property). The companies for industrial purposes pay 35 per cent (20 per cent of the portion not

6. Where, for example, the income tax and the land tax (*Grundsteuer*) are organized in a complicated fashion in order to extract the maximum amount, it is easy to devise a moderate summary wage tax and allotment tax (*Parzellensteuer*) similar in nature to a poll tax. Germany has, in practice, an independently organized wage tax; but it has finally proved preferable to retain this tax, as far as form and principle are concerned, as a part of the general income tax.

7. T., Nos. 39-41.

8. For further details, and for information regarding the mathematics of tax schedules in general, see G. und Bl., pp. 177-182, 295.

TABULAR VIEW OF THE TAXES

The numbers preceding the designation of the taxes refer to the corresponding numbers in the text, and show where the reader will find an account of each item.

TAXES ON PROPERTY AND INCOMES

A. On incomes:

- (1) Income tax
- (2) Tax on juristic entities — companies, and associations

B. On property:

- (a) The three principal sources
 - (3) Property
 - (4) Inheritances
 - (5) Yield from capital *Kapitalertrag*
- (b) Secondary sources
 - (6) Property increments
 - (7) Forced loans

C. On property transactions:

- (8) Corporations (*Gesellschaften*)
- (9) Securities
- (10) Sales on the exchanges
- (11) Percentages (*Tantiemen*)
- (12) Purchase of land (*Grundverkauf*)
- (13) Drafts
- (14) Reichsbank

TAXES ON CONSUMPTION

A. In the nature of general taxes on consumption

- (15) Sales
- (16) Advertisements
- (17) "Luxuries"
- (18) "Middle group"
- (19) Coal
- (20) Bills of lading
- (21) Transportation
- (22) Insurance
- (23) Brandy
- (24) Beer
- (25) Wine
- (26) Sparkling wine
- (27) Mineral waters

B. Taxes on individual items:

- (a) The long-established "five great levies on consumption," with their derivatives

- (28) Tobacco
- (29) Sugar
- (30) Saccharine
- (31) Salt
- (32) Cigars
- (33) Cigarettes
- (34) Tax on labels

(b) newly added:

- (32) Matches
- (33) Illuminating materials
- (34) Playing cards (of long standing)

C. Other items, bearing on the general fiscal situation:

- (35) Duties payable in gold
- (36) Export duties levied for social purposes
- (37) Statistical fees
- (38) Postal service
- (39) Telegraphs
- (40) Railroads

distributed to shareholders); the other associations, only 10 per cent. In order to judge of the effect of the tax scale upon incomes of various amounts, one must calculate the appropriate percentage for each "bracket" in the graduated tax upon the income of a private individual and add the results. This is done in the following table for individual cases: for purposes of comparison the tax on juristic entities — companies, associations, etc. — is given in an adjoining column (the assumption being that three-fourths of the profits is distributed).

| Amount of income (marks) | Tax on natural persons (marks) | Tax on industrial companies (marks) | Tax on other companies (marks) |
|--------------------------|--------------------------------|-------------------------------------|--------------------------------|
| 20,000 | 2,000 | 6,250 | 2,000 |
| 50,000 | 5,000 | 15,625 | 5,000 |
| 100,000 | 10,000 | 31,250 | 10,000 |
| 150,000 | 17,500 | 46,875 | 15,000 |
| 200,000 | 27,500 | 62,500 | 20,000 |
| 250,000 | 40,000 | 78,125 | 25,000 |
| 400,000 | 85,000 | 125,000 | 40,000 |
| 600,000 | 110,000 | 187,500 | 60,000 |
| 800,000 | 190,000 | 250,000 | 80,000 |
| 1,000,000 | 280,000 | 312,500 | 100,000 |
| 2,000,000 | 780,000 | 625,000 | 200,000 |
| 3,000,000 | 1,330,000 | 937,500 | 300,000 |
| 4,000,000 | 1,930,000 | 1,250,000 | 400,000 |
| 10,000,000 | 5,530,000 | 3,125,000 | 1,000,000 |

This table is at first more a source of perplexity than of enlightenment. It seems inexplicable that with the high prices that prevail at present a workman in a large city can spare any part of an income of 20,000 marks, and that even a higher percentage should be collected in the case of an income of 150,000 marks. In comparison with natural persons the companies for industrial purposes seem to pay a very high rate on the smaller amounts, and a progressively lower rate on the larger amounts; and, finally, it seems surprising that the "other companies," comprising not merely institutions of public utility but also associations for recreational

purposes, should be taxed so much more lightly than the other two categories. The first of these questions would be easy to answer if the German law makers had followed, for example, the well-tested English plan of limiting the "assessable income" to those portions which exceed the margin of subsistence. That this course was not followed is due to the difficult parliamentary experiences associated with the taxation of wages, in which it seemed that there was no alternative to levying on the full amount of the wage and then reducing the amount of the tax; that is, instead of the preliminary process of reducing the "income," a subsequent rebate is granted on the amount of the tax — 480 marks for the workman himself, an equal sum for his wife, and 960 marks for each child. But the same system was applied even to the expenses of the worker, the failure to consider which is offset in a lump sum by a tax reduction of 1080 marks. Consequently, in the case of the family of a workingman with four children, if the family actually receives an income of only 50,000 marks, the tax would amount to $5000 - (2 \times 480 + 4 \times 960 + 1080) = -880$ marks; that is, the deductions exceed the minuend. Result: freedom from taxation. The same family, in the case of an income of 100,000 marks, would pay a tax of $10,000 - (2 \times 480 + 4 \times 960 + 1080) = 4120$ marks.* The tax deductions for husband, wife, and children are applied, in the same fashion, to all incomes of smaller amounts: in the case of small property owners of over sixty years of age there is, moreover, a further reduction of 2000 marks.¹

9. There are further anomalies: an unmarried laborer, in a large city, with an income of only 20,000 marks, must actually be assessed at $2000 - (480 + 1080) = 440$ marks — a situation which depends, practically, on the concurrence of several unusual factors and which is then, no doubt, adjusted, as a matter of fact, by means of an abating process (*Niederschlagsverfahren*). In the country (for example, in the case of payments in kind) the situation is different.

1. The maximum amounts of income to which these abatements may be applied are as follows: for a husband and wife 100,000 marks; for children 300,000 marks; for small property-owners 50,000 marks.

But in other respects the burden is still greater than the table would seem to indicate, since, according to the new system of law, income is conceived more broadly. According to the English system of schedules, every portion of income was originally free from taxation, unless it came under the head of one of these schedules. The Prussian income tax, to be sure, always proceeded in accordance with the conception of income as an indivisible entity. But as it was based on a classification according to four categories ("ownership of real property," "ownership of capital," "trade, business, or industry" (*Gewerbebetrieb*), and "gainful employment"), all sorts of adventitious incomes (such as the proceeds of lotteries, incidental sales, etc.) were overlooked, unless they were expressly specified in the statute (as in the case of speculative gains). The new *Imperial* income law at first sought to invert the relation and to levy on every species of income except on such as the statute expressly excluded (as, for example, inheritances). The practical application of this method — which I consider sound in principle² — proved so difficult that a supplementary legislative program attempted a return to the so-called "taxation distributed by sources" (it would be erroneous to say "at the source" — an expression which fits the English system). Nevertheless, the conception of income embodied in the prevailing system of German jurisprudence may still well embrace many features not included in the conception current in other countries. In the system of taxes on juristic entities — companies, associations, etc. — to be sure, the deduction of the expenses of operation (*Werbekosten*) occurs automatically (as a mere matter of bookkeeping); but tax deductions for personal reasons are excluded. Thus, in reality, the situation will, in most cases, as regards

2. G. und Bl., p. 296.

the lowest amounts of taxable income, place a still greater burden on the companies for industrial purposes — one so serious, in fact, that it is inconceivable how such a burden of taxation can be borne by companies whose profits, regarded as the income of the shareholders, will, for the most part, be subjected to a second levy. This "double taxation" is allowed for to some extent, if not at this stage, at any rate in connection with the taxation of the shareholders. Shareholders whose income does not exceed two million marks can deduct 10 to 15 per cent of their dividends from their income tax.³ The relatively low taxation of the "other companies" is to be explained by the fact that, in so far as they partake of the nature of charitable associations, they ought to be treated with indulgence, and that the so-called income of a club is derived chiefly from contributions already taxed as part of the income of the members. In any case, the essential point in connection with these reductions is not that they divert revenue from the state, but that by their very existence they make possible the drastic application of the pressure of taxation.

A tax based on a progressive scale ranging from 10 to 60 per cent can aim only at securing the maximum returns. For this reason the states and the municipalities are forbidden to levy additional income taxes. The commonwealth assigns them their proper quotas out of the revenues derived from the national taxes.⁴

3. This expedient is not logically motivated, and not even numerically adequate. The question as to why the double taxation should ever have been prescribed, in the face of the necessity for subsequent adjustment, has been a perennial subject of discussion since the Prussian reform of 1891. The principal reasons are as follows: Taxation at the source (in this case, the expression is a correct one) affords protection against defrauding the revenue and makes it possible to levy upon foreigners. Moreover, the residuum of double taxation is a cherished means for the expression of hatred for mobile capital, on which point the possessors of immobile capital often find themselves in agreement with their socialistic opponents.

4. State tax law, T., No. 38. The same system applies to inheritance taxes and taxes on the purchase of land (*Grunderversteuer*) and on commercial transactions (*Umsatzsteuer*).

An income tax levied upon physical persons suffers from this defect, that it taxes the income derived from labor — a source which is extinguished upon the death of the workman — at the same rate as the income from capital, which endures after the death of the capitalist. Attempts to adapt the scale of taxation to fit the two types of income meet with the difficulty that the number of mixed incomes is too great. If one regards these attempts as a failure, there remain three possible methods by which to make allowance for the disparity in question: the revenues to be collected may be divided between two forms of taxation, the income tax being combined each year with a property tax; or property may be made to contribute at the point of its tangible hereditary transfer from one generation to another (inheritance tax); or a tax may be laid on those portions of income which manifest themselves as yields from particular pieces of property (*Ertragssteuern*). The new system of tax laws, instead of choosing from among these methods, applies them all.

(3) The "property tax,"⁵ in the same manner as the income tax, is graduated for natural persons, and proportioned in the case of corporate bodies (in this case, however, by a single statute). The tax scale prescribes, to be sure, only moderate rates: for the former, 1 to 10 per cent; for the latter, 1½ per cent. But this velvet paw merely conceals the claws — additional taxes, for the first fifteen years, which double or treble the amount. As we are interested, at this point, in precisely this first period (for who that is concerned with tax policies attempts any calculation beyond the year 1938?), I apply

5. This is, historically, the last vestige of the German Capital Levy Act. I have already set forth (in the issue of the *Quarterly Journal of Economics* for May, 1920), how my fundamental conception of this "emergency levy" (*G. und Bl.*, pp. 3-93) was altered beyond recognition by applying it to a period covering from thirty to fifty years. After the vicissitudes thus experienced by the basic idea underlying my conception, it was, of course, best to abandon it and in future to introduce an annual property tax (the assessment of which is revised only triennially).

the following examples to this period. As the first 100,000 marks (apart from certain cases, in which only a part of a property is assessed) are always exempt from taxation, we shall base our calculations — in order that the weight of taxation may not appear heavier than it really is — not on “taxable property” but simply on total property (including the above-mentioned 100,000 marks).

| Amount of property (marks) | Tax on natural persons (marks) | Tax on corporate bodies (marks) |
|----------------------------------|--------------------------------------|---------------------------------------|
| 100,000 | .... | .... |
| 150,000 | 100 | 187.5 |
| 350,000 | 500 | 937.5 |
| 600,000 | 937.5 | 1,875 |
| 850,000 | 2,437.5 | 2,812.5 |
| 1,100,000 | 4,687.5 | 3,750 |
| 2,100,000 | 16,687.5 | 7,500 |
| 4,100,000 | 46,687.5 | 15,000 |
| 7,100,000 | 100,687.5 | 26,250 |
| 10,100,000 | 163,687.5 | 37,500 |
| 15,100,000 | 283,687.5 | 56,250 |
| 25,100,000 | 553,687.5 | 93,750 |
| 26,100,000 | 583,687.5 | 97,500 |
| 100,100,000 | 2,793,687 | 375,000 |

The juxtaposition of figures shows at a glance that the property tax applies chiefly to “physical persons.” The reason for this will later become self-evident.

(4) An “inheritance tax”⁶ that figures not as a substitute for the annual property tax, but which, as it were, competes with the latter, cannot be based on the reasons that are common to the two taxes (for why should it be sought to attain by means of two taxes what can be achieved with one?), but, rather, on the reasons which are peculiar to it alone. The most important of these is that the heir is in the best position to surrender a portion of the property in the form of a tax at the time he

comes into possession of the property. In addition is emphasized the significance of this method as a means of control (perhaps also as a deterrent operating, in the nature of a judgment on the dead, to prevent the testator's concealing during his lifetime his property or income); and it is, further, contended (perhaps more as a matter of theoretical novelty) that it is the only form of taxation which excludes the possibility of shifting. Confining our attention to the main argument, we see that it adequately settles the truly scandalous controversy⁷ relative to the taxation of legacies left to the wife or husband, and those bequeathed to the children; the latter are taxed, the former are exempted.⁸ This corresponds to the prevailing conception according to which the property (whatever the status of the conjugal property rights may be from the legal standpoint) is regarded as "our property"; in most cases the wife, on her husband's death, instead of being thereby enriched, is impoverished — namely, to the extent of the capitalized earning power of the bread winner. If one conceives of the inheritance tax as a property levy which is applied, on an average, once in every generation, the husband and wife are seen to belong to the same generation, and the children to the following. An adequate inheritance tax, it may be remarked, should not be based on a progressive scale graduated solely according to the degree of remoteness of the relationship and to the amount of the inheritance; it should also be graduated according to the amount of property which the heir

7. G. und Bl., p. 132. A decision has now been reached — after many false moves — in line with the policy which I have advocated from the very first (G. und Bl., p. 134).

8. The law still takes cognizance of the conjugal status only in the strange exception "if the difference in age is more than twenty years and the marriage has been consummated within five years." At the time of the enactment of the recent legislation a story was being circulated in regard to a seventy-year-old lady — a multimillionaire — who had as her protégé a young man on whom she wished to bestow her property. To her question as to how she could escape the high inheritance tax and tax on gifts, her attorney replied, "There is only one expedient — to marry him." And she married him.

already possesses. In view of John Stuart Mill's thoroughgoing treatment of the subject,⁹ this should have become long since a well-established presupposition of all programs of tax legislation. The German law, to be sure, essentially meets these requirements. But the serious vicissitudes encountered in *statu nascendi* resulted in blemishes which have impaired its intelligibility. The essential features¹ will perhaps be made clear by a few illustrations:

(a) A master joiner leaves behind a workshop valued

9. Principles of Political Economy (the first edition appeared in 1848!), Bk. II, chap. ii, § 4.

1. The assessment of the tax involves three stages: (a) the basic principle is found in taxation according to the degree of relationship. The heirs are divided into five classes, which are typically represented by (1) children; (2) grandchildren, great-grandchildren; (3) brothers and sisters, parents; (4) nephews, grandparents; (5) more remote relatives and strangers. The tax rates for the five classes are as follows: 3.5, 5, 6, 8, 14 per cent. (b) For each class, beginning with an inheritance of 100,000 marks, there is a system of additional levies expressed in percentages of the tax. The additional tax begins, in the case of an inheritance of 100,000 marks, at 10 per cent (that is, the tax is increased by one-tenth); 200,000 marks, 20 per cent; 1 million marks, 100 per cent (that is, the tax is doubled); 3 million marks, 300 per cent (that is, the tax is quadrupled); from this point on, for every additional 400,000 marks, 20 per cent is added, so that, in the case of an inheritance of 5 million marks, the surtax amounts to 500 per cent (the original tax is multiplied sixfold), remaining constant from this point on. But as these rates do not apply the correct mathematical procedure for the bracketing (*Durchstaffelung*), certain reservations are prescribed in order that an amount slightly exceeding a given bracket shall not prove a handicap rather than an advantage to the heir. (c) If the heir already possesses more than 2 million marks, an additional surtax is added to the amount of the tax as determined in accordance with (a) and (b). This begins with a rate of 10 per cent on the first 200,000 marks; is graduated in the case of amounts of property (already in the possession of the heir) exceeding 2 million marks, according to stages of 200,000 marks; and reaches its maximum rate (100 per cent) in the case of property amounting to 3,800,000 marks. Even here, owing to the character of the brackets, the following qualification is necessary (§ 10, paragraph 3): "The surtax must not exceed the half of the amount exceeding 2 million marks." The total tax rate must never amount to more than 80 per cent of the inheritance. Small inheritances are exempt. The amounts of such small inheritances lie between the limits of 5000 and 50,000 marks, according to circumstances; it may be said, with a fair degree of accuracy, that the limit of 50,000 marks applies to bequests in the direct line of descent. The act provides, furthermore, abatements for bequests (*Erbschafts-Anfälle*) to municipalities, charitable associations, and associations of public utility; and exemptions (up to a certain amount) for donations to political associations, etc. For the consolation of the reader who finds it difficult to follow these devious and intricate courses, be it said that the organization of the tax is unnecessarily complicated. The social and political purpose could be achieved fully as well—in fact, more effectually—by supplementing the feature of graduation according to degree of relationship with the adoption of merely Mill's progression, in so far as this is applied to the property of the heir as it presents itself after the receipt of the inheritance. The complex qualifications may be dispensed with as soon as the system of bracketing, already referred to, is applied.

at 250,000 marks, and a house worth (after deducting the mortgages) 200,000 marks; total, 450,000 marks. Half of the bequest goes to his wife; the other half is to be distributed among his three children. The wife's inheritance is exempt from taxation. Each of the three children pays (a) 3.5 per cent on each 75,000 marks (= 2625 marks each).

(b) An uncle bequeaths to his nephew one million marks. Basis of taxation: (a) in Class IV, at 8 per cent of the inheritance = 80,000 marks; additional tax (b) of 100 per cent of the tax, 80,000 marks; total, 160,000 marks. As the nephew already owns property amounting to three million marks, an additional tax (c) is levied, amounting in this case to 60 per cent of that "total." The grand total is, accordingly, 256,000 marks.

(c) A great landed proprietor without issue, whose property is estimated at 20 million marks, leaves behind, as his sole heir, the daughter of his nephew. Basis of taxation: (a) in Class V, at 14 per cent of the inheritance = 2.8 million marks; additional tax (b) of 500 per cent of the tax, 14 million marks; total, 16.8 million marks. The heiress receives, from her deceased husband's estate, a yearly annuity of one million marks, which is capitalized, according to her age, at 20 millions. For this reason a further tax (c) must be levied, which (as two millions are exempt by law) is to be assessed on a valuation of 18 millions; amounting, at 90 per cent of that total, to 16.2 millions. But as this amount would exceed one-half of the 18 millions in question, it must be reduced 50 per cent = 9 million marks. Even this would give a grand total of 25.8 million marks; that is, a sum exceeding the amount of the inheritance. The grand total must be reduced to the maximum legal rate of 80 per cent of the inheritance = 16 million marks.

A difficulty of long standing, applying to all inher-

itance taxes, consists in the possibility of their being evaded by a transfer of title during the lifetime of the property owner. The tax on gifts (*Schenkungssteuer*), necessitated by this situation, has been developed in Germany to a position of equality with the inheritance tax. If this has led in practice to an absolutely inexorable extension of the conception of "gift" and to a still more rigid and restricted interpretation of the exceptions, the new law has served to intensify both by introducing a third category — that of *Zweckzuwendungen*. The consequences of this increasing extension of fiscal control are already becoming distinctly perceptible in the distaste, in the steadily narrowing circle of those who still possess anything to give away, for making any gifts or donations, and in the convenient pretext of the *nouveaux riches* for representing gift-making as distasteful. These considerations are becoming very serious; but we cannot treat them in greater detail because of the necessity for confining our attention to the general character of the new tax system as a whole.

(5) Let us consider, finally, the "tax on the income from capital" (*Kapitalertragssteuer*).² It consists in a 10 per cent deduction from every payment of interest, dividends, etc., which the debtor has to divert to the national treasury before paying the interest to his creditor. It belongs to the class of taxes — especially fully treated in German political economy — known as *Ertragssteuer*, *Objektssteuer*, or *Realsteuer*, the essence of which (so it is alleged) is to ignore personal circumstances, particularly indebtedness on the part of the recipient of the interest. The chief difficulty — namely, that the banker in a consistent but meaningless fashion would have to pay a tax levied on one side of the ledger

without regard to the other — the statute avoids by exempting the earnings of banking establishments in the form of interest and subjecting them to special legislation which, in effect, tends to establish a sort of special 10 per cent income tax. But all those to whom interest and the like fixed payments are due face not only the hardship, in case they have borrowed money, of being unable to deduct these interest dues, but the still greater hardship of having to bear an advance levy upon their income, such as is not shared by any other form of income. For this situation the income tax law seeks to make allowance by means of a partial reduction, especially in the case of small property owners. But the measure of indulgence is not adequate; and it will doubtless become increasingly evident that the law, in view of its severity and breadth of application, cannot be maintained without a series of casuistic qualifications. It is clear that it is something different from the corresponding English schedule, which is based on the conception of an advance payment on the income tax. Still less does it resemble the taxes on the income from capital which are levied in countries having no income tax and which serve as a partial substitute for the latter. The chief merit of the present law lies in the host of unpaid tax collectors which the treasury gains in the persons of debtors, and in the convenience with which it is possible to reach foreign recipients of domestic interest and dividends (both of these being advantages which are compatible also with the English system). The foreigner may be astonished that immobile capital is not reached by a similar double-charging. The reason is that in Germany the taxes on land and buildings (together with the tax on trade or occupation, are the fiscal mainstay of the states and of the municipalities.

To these forms of property taxes — which may be

derived from any handbook of political science — are added two others, more in the nature of accessories: the tax on property increments and the forced loan. Both of these represent obligations supplementary to those embodied in the property tax.

(6) The tax on property increments³ (*Vermögenszuwachssteuer*) seeks to determine triennially whether the value of a given piece of property has increased. In case the augmentation amounts to more than 100,000 marks, a tax of 1 per cent is due on the next 200,000 marks, 2 per cent on the following 200,000 marks, and so on — in variously demarcated gradations. A tax of 10 per cent is levied on increments exceeding 6 million marks. Listed persons whose total property amounts to not more than 200,000 marks are exempt from taxation. Taxes on property increments, while favored in theory, have not been very successful in practice. But indignation at war profiteers has, no doubt, in all countries led to efforts to reduce the profits which they still possess.⁴ In this connection the fact has been overlooked that complaints directed against newly acquired wealth have always⁵ constituted an instinctive method of diverting the legislator's attention from wealth long since acquired. The new German law treats as a permanent matter what was conceived as but a temporary tendency; the revenue thus derived may be secured, more justly, more conveniently, and with less economic injury, by means of a minimum increase in the percent-

3. T., No. 44.

4. These experiments appealed, in Germany, to the precedent already established by a law of July 3, 1913, which, altho designated by the misleading name of *Besitzesuer-Gesetz*, was in reality an enactment providing for a tax on property increments. For various special laws enacted since 1916, see T., No. 54a; also G. und Bl., pp. 107-109, 286.

5. The whole matter I treated in detail from the standpoint of this hitherto neglected principle, in a contribution to Braun's *Annalen für soziale Politik und Gesetzgebung* (1919-20). The number in question, however, was never printed; further evidence of the sad state of science in Germany.

age rate of the tax levied on the large property holdings of long standing.

(7) The forced loan (*Zwangsanleihe*) is obligatory from July to December, 1922. It is non-interest-bearing up to October 31, 1925; up to October 31, 1926, it bears 4 per cent interest, and thenceforth the rate of the war loans, namely, 5 per cent. The obligation to subscribe is graduated: for the first 100,000 marks of property, 1 per cent; for the next 150,000 marks, 2 per cent, and so forth, in variously demarcated gradations, to the requirement that 10 per cent of the amounts exceeding one million marks shall be subscribed to the forced loan. Corporate bodies pay one-half. Property amounting to 100,000 marks or less is in all cases exempt. Aged persons who are dependent on a fixed income, small property owners, etc., are, furthermore, exempt. The sole purpose of the forced loan is to assure a sum — to be raised once only — of 70 milliard marks, to defray a portion of the reparations required by the Treaty of Versailles. If this sum is not secured, an additional amount will be required; if it is oversubscribed, a part will be returned. The forced loan is rightly included in the category of taxes, if for no other reason than that it is for three years non-interest-bearing. But in addition to this, the requirement to set aside a portion of one's property from realty, mines, shipping trade, industry, and fixed investments of all sorts, and to place it at the disposal of the state, represents in itself a burden akin to taxation, and may, under certain circumstances, become so formidable as to exceed the pressure exerted by other taxes.

On thinking over these two additional tax obligations the legislator felt uneasy as regards the technique of enforcement. The forerunners of this sort of profit tax came hard upon so many people whose holdings

showed in reality a diminution in value that the stock exchange applied to the measures the facetious appellation of "profit-and-loss taxes." But now that the attempts to draw upon property which has in fact depreciated in value have finally been abandoned, the depreciation of the currency has become so universally evident that no one believes any longer in these mirages. How is it practicable, in a time when the currency is rapidly depreciating, to base a tax measure upon an increase in property values? The statute answers this question, in concise terms, as follows (§ 5, al. 2).

"In comparing the property values at the beginning and the end of the period in question, the *intrinsic purchasing power* of the mark at the two points of time is to be taken into account in determining the property increment subject to taxation."

In other words, it is left to the discretion of the government as to what standards shall be applied in estimating whether an increase of one million marks on $1\frac{1}{2}$ to 2 (or perhaps even 3 or 4) million marks is to be regarded as an increment or not. In the case of the forced loan, however, doubt as to whether the burden of this measure can in all cases be borne became so serious that the national minister of finance was authorized, in order to avoid undue hardship, to remit the subscription obligations in individual cases or to transfer this authority to the treasury departments of the states, or even (with the assent of the Reichsrat) to proclaim in advance the exemption of certain groups. This dispensatory authority is something different from similar sections in other tax laws, or from the exercise of executive clemency; for since the contributions thus remitted have to be made up by others, it amounts to this: the executive is authorized to apportion the tax burden. It would, doubtless, be difficult to cite another example of

a nation's imposing upon itself such heavy obligations coupled with such discretionary executive powers.

(8) to (14). In addition to these taxes, which are levied on incomes individually determined (or assessed to individuals), there are a number of others based solely on the consideration that portions of property in process of transfer from one owner to another (*im Verkehr*) are visible and hence accessible to levy. The customary practice, in German financial science, of grouping these taxes under the head of *Verkehrssteuern* is, to be sure, explicable from this point of view. But the designation is an unfortunate one, if for no other reason than that it is ambiguous. Taxes of this type, levied on mobile capital (personal property), are found in the four *Kapitalverkehrssteuern* which were established independently of each other in connection with the distribution of the functions of the old, complicated Imperial stamp act. In floating joint-stock companies and similar companies for industrial purposes, an (8) "association tax" (*Gesellschaftssteuer*), amounting to $7\frac{1}{2}$ per cent, is levied on the initial capital subscribed by the shareholders. The issue of bonds bearing a fixed rate of interest, or the first transfer of foreign shares, is subject to a (9) securities tax (*Wertpapiersteuer*), which in certain cases amounts to only $\frac{1}{2}$ or 2 per cent but in most cases 4 per cent and, in the case of foreign, $7\frac{1}{2}$ per cent. The bonds issued by the German commonwealth, the states, and the German municipalities are exempt from this taxation. These two taxes were formerly designated by the term *Emissionssteuer*, as they are levied only once, namely, at the time the securities are issued. But the same securities (as well as the exempted bonds of the commonwealth, states, and municipalities) are subject, besides this, to a smaller tax, which is levied

whenever they change hands. As this transfer ordinarily occurs on the stock exchange, and the same tax applies to commodities (grain, cotton, coffee, etc.) handled on the exchange, it has been given the name of (10) *Börsen-Umsatz-Steuer* (tax on exchange transactions). The tax for commodities amounts to $\frac{1}{2}$ per cent; in the case of the different kinds of securities (and bills of exchange) it is variously graded, and is differentiated in each case as "transactions of dealers, clients, and private individuals" (*Händler-, Kunden-, und Privatgeschäfte*). Shares, for example, are assessed in the case of professional dealers — that is, members of the stock exchange,⁶ banking houses, etc. — at $\frac{1}{10}$ per cent; when only one of the parties is a dealer, the other being a

6. This class of persons is somewhat differently constituted in Germany from what it is in America. A limited exchange — such as the New York Stock Exchange is, with its dearly purchased membership — is unknown in Germany. Until the seventies, the Berlin Stock Exchange was accessible, gratis, to everyone who desired to buy or sell. It is said that the philologist August Böckh sometimes personally looked after his investments in government bonds on the stock exchange; and that, in reply to expressions of astonishment that he should know something about these matters, he observed, "You are not surprised that I should be acquainted with the national economy of the Athenians of two thousand years ago [the subject of his chief work]; but that I should be familiar with the economic system of the Prussian government of my own time — this seems strange to you!" The anecdote, whether authentic or not, serves to show how freely accessible this stock exchange was at that time. Even since the introduction of restrictions, no merchant, banker, or business man who has a legitimate interest in the transactions in question is excluded, provided he has paid the prescribed (graduated) fee. Therefore the purely professional transactions in Germany consist, for the most part, of the transactions between members of the stock exchange and are subjected only to the lowest rate of taxation. In other transactions one party usually is a member of the stock exchange, so that only a medium rate of taxation is applied. It is comparatively seldom that private individuals enter into such transactions with one another; still less frequently does it occur to them that the procedure is subject to a stamp duty. These observations are necessitated by the fact that otherwise a foreigner would be sure to regard the rates of assessment as prohibitive. In arbitrage transactions the rates per mille for bank notes and coins are 0.20, 3, 6; for other forms of foreign money (drafts, checks) 0.10, 1, 2.50. As it is a question, in normal times, not of dealing with sudden and great fluctuations, as is the case today, but of taking advantage of margins reckoned in pfennigs, it is evident that arbitrage transactions cannot stand rates of .1 and 2.5 per mille (to say nothing of .3 and .6 per mille). In the case of the vast majority of these exchange transactions it is a question of only .01 and .02 (1 or 2 per mille); and there is not a single banker — no matter on how small a scale he operates — who is unable, in accordance with the German exchange system, to participate in this large body of transactions. It is only to the subsequent transactions which, in individual cases, ensue between the banker and a client who has placed an order with him, that the intermediate rates of .1 and .3 per mille apply. Seldom if ever are the maximum rates of 2.5 and .6 imposed.

"private customer" (*privater Kunde*), the rate is $\frac{2}{5}$ per cent; when both parties are private individuals, the rate is 1.2 per cent.

Example: A lady gives her banker, on August 24, 1922, an order to purchase 10 shares of Düsseldorf-Kammgarn, par value 1000 marks. The rate quoted on the stock exchange in percentages on this date amounted (exactly) to 4000; that is, 40,000 marks per share, total for 10 shares, 400,000 marks. According to German commercial usage, the banker represents himself as purchasing for his own account; the banker who negotiates the sale occupies a corresponding position. Tax on 400,000 marks at $\frac{1}{10}$ per cent = 400 marks. The banker now sells the stock to his client, and this concluding transaction (*Abwicklungsgeschäft*) is subjected to a tax of $\frac{2}{5}$ per cent = 2400 marks. Total tax: 400 marks + 2400 marks = 2800 marks.

The (11) tax on percentages (*Aufsichtsrats-Tantiemensteuer*), which was devised during a period when it was difficult to secure parliamentary majorities, as a levy upon the hated percentages (*Tantiemen*) of the hated boards of directors of the hated joint-stock companies, and which can now no longer be interpreted save as a special income tax levied upon this species of income, must be listed here among the *Verkehrssteuern*; for it is difficult to justify, and a *Verkehrssteuer* requires no justification: money is in evidence; skim the cream! The company pays for the account of the recipient; that is, 20 per cent of the percentage (*Tantieme*) is deducted before payment of the remainder. The first two of these four taxes on property transactions involve undoubtedly a taxation of capital itself; in the last two at least conditionally. The realization that this sort of tax falls chiefly upon the capital of corporations, while an aggregation of capital in the

possession of an individual is exempt, is, no doubt, primarily responsible for the lower rate of the property tax levied upon corporate bodies.

If the *Kapitalverkehrssteuern* are confined to personal property, this is only because a national tax is already levied on the transfer of real property—the (12) tax on the purchase of land (*Grunderwerbssteuer*) (September 12, 1919).⁷ Moreover, perhaps really the most important of the taxes on property transactions (*Verkehr*) is the (13) *Wechselstempel* (stamp tax on drafts), which on July 26, 1918, was made still more drastic. Finally, we should mention among the capital levies the (14) taxation of the Reichsbank. Under the altered circumstances of the war and post-bellum period it received automatically returns which were foreign to the purpose for which it was created. The commonwealth has annually regulated by special enactment its quota of these returns, and the shareholders have raised no objections. The “autonomy” of the Reichsbank, established at the instance of the Entente, will have no effect upon the nature of this levy; it will, on the contrary, serve simply to reveal more clearly its character as a tax.

III

(15) Everything that has ever been said or written in Germany — projected or realized, pronounced possible or impossible — relative to a levy on consumption, appears obsolete since the enactment of the sales tax. The sum total of sales negotiated in a country with a highly developed money economy offers the broadest base that can possibly be devised for a tax policy. The fact that the volume of sales of a country exceeds its consumption (since many articles that change hands

7. T., No. 47.

serve merely to pave the way for exportation) is, for us, of minor importance in comparison with the fact that consumption is, practically speaking, completely covered by these commercial transactions. The comprehensive character of the *Umsatz* is so carefully preserved in the German enactment that probably none of the numerous earlier taxes in this field can offer any parallel. Political economy does not possess any more highly generalized concept than that represented by the term "good." As this concept is completely covered by the twofold analysis into commodities and services, the "deliveries and performances" (*Lieferungen und Leistungen*) of § 1 represent the broadest possible scope. The only qualification is the supplementary provision that these must take place within the limits of a trade or profession, that is "independently" carried on; in the absence of such a provision, wages would, in effect, be subjected to an additional income tax. But the sales tax transcends the broadest conceivable limits in being applied even to non-sales (*Nicht-Umsatz*). In every exchanging community islands of economic independence are preserved; agriculture is still everywhere "its own best customer." Such use of the products of one's business or industry for one's own consumption is likewise taxed. When this tax was devised⁸ for the purpose of avoiding the receipt stamp tax (*Quittungsstempel*), so unpopular in Germany, its sponsors sought at first (1916) to make it palatable by the argument that every objection based on its gross lack of discrimination throughout a field of such wide scope should be waived in consideration of the (alleged) modest rate of $\frac{1}{2}$ per cent. This has now been quadrupled. But in reality the tax on consumption is a multiple of this 2 per cent. Whoever buys a knife pays imperceptibly, in the pur-

8. G. und Bl., pp. 106, 107.

chase price, the sales tax paid by the smelter in connection with the purchase of the iron ore, by the steel mill in purchasing the iron, and by the cutler in purchasing the steel (to say nothing of other intermediate stages), and, in addition to this, pays a final, obvious sales tax (even compounded on the amounts of the earlier taxes; a tax on taxes!). The burden imposed by this factor becomes increasingly heavy as the transactions are more elaborately subdivided.⁹ We may recall, by the way, that it was the extension of the Arabian-Spanish *Alcavala*¹ to the brisk commerce of Holland that has been designated as the final, decisive impetus which led to the furious revolt of the Netherlands. On account of the innumerable opportunities for the application of the sales tax, the exemptions — at least with reference to material goods — do not seem at first sight very considerable. If, for example, articles imported from other countries are admitted duty-free, this does not mean that colonial produce may be consumed without paying a sales tax; for, after entering the country, until it reaches the consumer it passes from hand to hand and at each point pays a tax: it means simply that the first link in the chain is exempted from taxation. Indeed, even if, in connection with the importation of food-stuffs, the first domestic sale is exempted, only two links in the chain are free from taxation; furthermore, consistently enough, such exemption is denied in the (rare) cases where the second stage in the process is the last (retail sale; that is, strictly to the ultimate consumer). Even if one assumes that grain or wool, on an

9. But also the latest development, a comprehensive organisation resembling a trust, which concentrates in the same hands different stages of production extending from the raw materials to the finished product, causes difficulties from the standpoint of social politics, by reason of the privileged position of large producers compared with that of the small producer.

1. What Adam Smith has to say with regard to this (*Wealth of Nations*, Bk. V, chap. ii, p. 2, paragraph 4) is appropriate with reference to present-day conditions.

average, changes hands only five times, before the grain is placed on the table in the form of bread, and the wool is first worn as a garment, this would in itself represent a tax of 10 per cent on consumption, or, for the average person, a 10 per cent increase in his income tax. The burden might, in reality, be considerably greater. The exemptions in favor of certain institutions of public utility, sickness funds, payments in kind made by employers (so profoundly have prevailing food conditions modified the attitude toward the truck system) are, to be sure, fairly numerous, but not of essential importance in estimating the burden placed upon the sum total of consumption. More significant are the exceptions necessitated by the fact that sales are already subjected to another species of tax; but in these cases, of course, it is necessary to bear the brunt of this other tax. The difficulty of perceiving the nature of the sales tax as a tax on consumption is due to the fact that the form of the levy is as unlike as possible in the two cases. Every business man is annually assessed on the basis of a tax declaration, which gives rise to what appears to be a tax on trade or occupation graded according to the volume of sales. Meanwhile he has entered each individual item on his customer's bill and is, moreover, accordingly required to make quarterly payments on account to the tax collector's office (which, by the way, are arranged in a manner that entails unwarranted severity).

(16) Certain increased sales taxes provided for by the statute are, in reality, special taxes on consumption which have been embodied in this enactment only more or less as a matter of accident. Take, for example, the (16) tax on advertisements. The enthusiasm with which the "colossal profits" of the newspapers were pounced upon, without making any preliminary investigation as to their alleged magnitude, has, to be sure, greatly

abated in the face of the steadily increasing cost of inserting engagement announcements, obituary notices, and business advertisements of enterprises both large and small (regardless of their different political views relative to the press), and the realization that the tax has been instituted at a time when the greater part of the newspapers are facing a life-and-death struggle in view of the excessive cost of composition work and of paper. Accordingly, in the case of all the small newspapers whose quarterly income does not exceed 200,000 marks, the 5 per cent rate has been reduced to 1 per cent; for the next 200,000 marks, to $1\frac{1}{2}$ per cent, etc.; and even for the largest amounts, exceeding 1 million marks, to 4 per cent; so that the full rate of 5 per cent applies only to a class distinct from ordinary newspaper advertisements, such as the renting of advertising space by tramways, illuminated advertisements, public cryings (*Ausrufen*, etc.). But even making allowance for those extensive reductions,² the press tolerates this tax only because it faces collapse by reason of the scarcity of paper. The greater the burden one is obliged to bear, the less capable one is of offering resistance.

(17) A special tax rate of 15 per cent is levied on articles of luxury, justifying the special designation (17) of tax on luxuries (*Luxussteuer*). A rate as high as this does not admit of multiplication at will. The tax is levied only in the case of delivery by the producer (or in the case of certain articles sold to the ultimate consumer). For the classification of articles of luxury, the enactment provides a list of enforcement regulations (constituting a stout octavo volume), which amount to a whole Homeric catalogue of ships. Even here the statute endeavors to make allowance for its inevitable

2. The advertising agency must, moreover, pay a tax of 2 per cent of the commission fee. If an advertising expert designs a poster, and a space is assigned the placard on an advertising pillar, two advertisement taxes are levied, each one at 5 per cent.

limitations and impossibilities — which are becoming increasingly apparent — by authorizing the executive to tax certain articles and exempt certain other articles; that is, to accomplish what the legislator was unable to do himself. But the government is required to submit, by October 1, 1922, an amended formulation of all the tax regulations, "in the nature of a complete revision and simplification and providing for an essential limitation of the range of articles subject to the tax, with adequate protection for the highly esteemed products of German labor"; otherwise the whole tax on luxuries becomes inoperative. The latter alternative appears most desirable!³

(18) In addition, there is a curious special sales tax, levied at the rate of 10 per cent, on night's lodgings, the safe-keeping of money and valuables, and the letting of riding animals. One need only name these three things together to perceive that we have to do here, in reality, with three things which the legislator (rightly or wrongly) regarded as susceptible of taxation and which he (wrongly) made to feel his displeasure by means of this convenient method. This, indeed, is generally the case with a tax calculated with reference to so broad an area as is a general sales tax: every departure from the principle of equality is attended by the risk of creating an unceasingly operative machine for contriving taxes, such that one need only mention a source of revenue for the moment decried as profitable, to see immediately a parliamentary majority set on its trail. The lodgings tax applying to inns, boarding houses, and private lodging houses was demanded at a time when the object was to cope with profiteering; it applies only to amounts of 40 marks or more. It is not simply that meanwhile this

3. The proper counterpoise for the burdens on the masses from a schematically universal tax on consumption must be secured through an adequately constructed tax on property and income. The counterweight cannot be incorporated in the weight itself.

amount has become a modest one: this special tax belongs to a period of greatly increased traveling expenses. These three payments must be treated as three taxes. In order to avoid the appearance of aiming at large figures, let us give them a common name (18), middle-group sales tax.

As soon as statistics are available in regard to the tax yield,⁴ it will be found that the German sales tax embraces the most colossal tax on consumption that the history of taxation has to offer. It is not to be compared with other levies on consumption of a generalized character; although this does not prevent the latter from being a sweeping tax on consumption so drastic in nature that, in the absence of what may be called this unfavorable contrast, they would be certain to outrank all other similar measures.

(19) to (22). A tax on coal is, in reality, tantamount to a tax on the entire body of production; even apart from fuel for household purposes, the (19) coal tax is therefore a tax on consumption, and, indeed, of almost all consumption, as far as the goods consumed are domestically produced.⁵ The same is true of taxes on transportation. It is not simply the tourist who pays a tax on consumption in the shape of a tax on his ticket: everything one consumes has undergone transportation, either in the case of the commodity itself, or of its raw materials, or of the machinery required for its produc-

4. During the fiscal year 1921 the sales tax is said to have yielded 11.2 milliards (the final official figures are not yet available). As the rate has now been increased from 1½ to 2 per cent, as prices have more than doubled and are still increasing, and as the recent modifications in the direction of higher rates probably outweigh the abatements, a yield of 30-40 milliards would not be surprising.

5. In the case of the coal tax, the act provides a standard rate (*Normalsatz*) of 40 per cent of the value. But for each of the seventeen coal-producing areas of the country is prescribed the percentage of the standard rate (that is, the percentage of 40 per cent) that may actually be levied. This is as low as 60 per cent (in two small districts of Bavaria — which possesses very little coal — even 50 and 25 per cent) and in one case (that of Rhenish brown coal) reaches 115.5 per cent. Moreover, the executive branch is vested with full authority to change the standard rate.

tion, or of those who were responsible for its manufacture, purchase, or sale. This applies in every particular to the (20) act imposing a stamp tax on bills of lading (*Frachtkundenstempel-Gesetz*) of June 17, 1916, and still in force; while since the enactment of (21) the tax on passenger and freight traffic, of April 8, 1917, the railroads have passed into the hands of the commonwealth, thus depriving the tax — as far as it applies to the greatest part of the system of transportation facilities — of its purpose and even of its capacity to survive for any length of time. At this point, of course, the tax becomes a question of rate policy. The fact that rate schedules, which provide the treasury with a surplus, embody a special or general tax on consumption is not emphasized at the present time, simply because this surplus is lacking. A general tax on consumption is involved also in the (22) insurance tax. For not only does the head of a family, in taking out fire insurance, receive a "good" that enters into his "consumption"; but the price of every commodity contains the fees which have been paid in the course of its production (or the production of its raw materials) for insurance against fire, theft, the risks of transportation, accident, etc.⁶

(23) to (34) The German tax reform, in undertaking a drastic levy by means of these taxes universal in their scope, on the totality of consumption, has unwittingly turned the taxation of consumption in a different direction and has relegated to the background all the measures hitherto commonly discussed as taxes on consumption. These consisted of the so-called "five great

6. The insurance tax is levied annually, in the case of fire and hail insurance, at the rate of 2 per mille on the amount insured. In the case of other forms of insurance, the tax is levied only on the premium, but at rates that are correspondingly high and hence expressed in percentages: burglary and glass 10 per cent; accidents and injuries (*Haftpflicht*) 5 per cent; life (if exceeding 10,000 marks of capital or 1000 marks of income) 2 per cent; and so on.

imposts on consumption" — long established in Germany — on brandy, beer, tobacco, sugar, and salt. The (23) tax on brandy, to be sure, has, in form, been abolished, as the commonwealth carries on the brandy trade as a monopoly. But as it fixes the selling prices from the standpoint of taxation, the monopoly is merely another form of tax. The (24) tax on beer was necessarily supplemented by (25) a levy on wine; the fact that this was so long delayed can be explained only historically.⁷ Since the fancy grades of wine cannot be adequately reached by a uniform wine tax, the treasury recoups itself for this by (26) a particularly heavy tax levied on the clearly differentiated category of sparkling wines. And since the brewers — an influential class in Germany — feel uneasy at the idea of there being no tax on mineral waters, which compete with their product, it is only logical that a right-minded tax treasurer should supplement taxes on beer with (27) a tax on mineral waters. The duties on tobacco have led — largely by analogy with the French system, which explains the recourse to the French term *banderole* — to (28) two special taxes on cigars and cigarettes. From (29) the tax on sugar (which suddenly presents a totally different aspect from that of the bounty policy before the war) there developed a legal control over the trade in substitute products (saccharine). And as illusory representations are made as regards the nutritive value of these substitutes, the representatives of the sugar interests succeeded in inducing the champions of the public health to oppose this competition. As the restrictions are so devised that there is still a possibility of deriving a fiscal revenue, the (30) law relative to saccharine products (*Süszstoff-Gesetz*) is ranked among

7. It was to the interest of the states belonging to the Customs Union to maintain a uniform tax on consumption. But wine is a popular beverage only in western and southern Germany.

the tax laws. In addition to these taxes — which are closely related, even tho one is occasionally derived from another in somewhat dilettante fashion — there are taxes on (32) *matches* and on (33) *illuminating materials*, as well as the small duty — of long standing — on (34) *playing cards*, which contemplates its situation with no little astonishment, wondering how it happens that, in this period which reckons in terms of milliards, it should receive the unmerited honor of being still further perpetuated.

(35) to (40) Without undertaking in this place a discussion of the question of customs duties — which would carry us well beyond the boundaries of financial science — we should at least name the respective enactments: (35) payment of duties in gold; (36) the so-called social export duties (*soziale Ausfuhr-Abgabe*); and also the increase of the (37) small statistical fees (*statistische Gebühr*). In addition should be mentioned the multiplication (*Vervielfachung*) of the postal, telegraph, and railroad fees (*Gebühren*).

IV

If, in concluding, we attempt a general survey of the field, we should note that the fate of a system of taxes ceases to depend on the nature of its technical details as soon as the monetary system on which it is based begins to fluctuate. This fluctuation not only influences the returns (consideration of which we have been obliged to exclude from this study), but affects also the adequacy of the rate of the individual brackets, the demarcation of these, the maximum amount represented by the exempted margin of subsistence, the relative capacity of the different classes of society for bearing a tax burden, and so on. The collapse of a monetary system carries with it that of the body of taxes con-

structed on the basis of this system of currency, no matter how ingeniously and circumspectly the tax system may be organized. By the time these lines are placed in the hands of the reader, the status of the German monetary system will already present a different aspect from what it did at the time these laws were enacted and the current budget went into effect. If to a budget of 126 milliards for administrative purposes and the needs of state enterprises is added an advance estimate of 226 milliards for the annual reparations sum, and if it is uncertain how large the amount of this contribution will actually become during the course of the year, this uncertainty will determine the increase in the issue of paper money, the increase in the instability of the currency system, and hence the fate of the entire body of tax laws. The provision of the Treaty of Versailles, according to which the maximum amount of reparations must be actually determined by May 1, 1921,⁸ has been carried out only formally — not substantially; and the requirement that the fundamental factor shall be an exact calculation of Germany's economic capacity⁹ remains as yet wholly unfulfilled. So long as these conditions are not fulfilled, any expression of opinion with regard to the new system of taxation must be given subject to the proviso that this system be not robbed of its vitality by the pressure of external circumstances.

Granting this reservation, I am of the opinion that the tax system in question is in itself adequate to the fulfillment of its purpose — namely, to extract from the economic resources of the nation, for the needs of the commonwealth, the maximum amount possible. But since this body of laws was based on a compromise, in connection with which it was to the interest of each

8. Art. 233, al. 3.

9. Art. 241.

party to burden the other parties with the maximum number of taxes, and to parade its own concessions in the form of as large an array of taxes as possible, the upshot has been that the levies on property and income, as well as those on consumption, are too numerous: the protest against the *impôt unique* has proved too much of a good thing. The same effect has been produced, by the tactics of these compromise measures, as regards the rate of the tax schedules — which have in many instances been scaled too high for practical enforcement. The history of taxation shows that it requires several generations to establish a general conviction, in the minds of the citizens of a country, that a part of their income belongs to the state. It is hence questionable whether the prevailing tax morale has yet reached a sufficiently high plane to warrant, even in the case of the very largest taxable elements, the attempt to impose as high a rate as 60 per cent; and the question arises whether it would not be more prudent to make allowance for human frailty and to rest content, for the present, with applying the more readily comprehensible principle that, in the case of the largest amounts subject to levy, citizen and state should share the income on equal terms. Above all, in a country whose tax resources are being subjected to unusual strain, the state should avoid imposing taxes which its citizens regard as unreasonable. A citizen who has paid all his taxes promptly and scrupulously and who has nevertheless succeeded in adding to his property, cannot comprehend why this augmentation, in addition to all his income and property taxes, should entail a special tax (tax on property increments) — least of all at a time when it would appear most conducive to the interest of the national economy that a premium should be offered for the augmentation of capital. The injurious economic

effects of the various taxes on property increments which have been attempted during the last six years in Germany are all too evident.¹ The apologists for these taxes, who are at present active in all parts of the earth, certainly cannot appeal to the example of Germany. The government will have to exercise the closest scrutiny with reference to the practicability and the methods of deriving in each and every case a larger revenue by fewer taxes and a lower rate.

But even if this course is pursued (and it is very seldom that ministers of finance have had sufficient insight to realize the wisdom of this course), the German taxes will remain both large in number and high in their rate. The tax burden at the present time differs from earlier systems no longer merely quantitatively but also qualitatively; and, in view of this fact, the machinery of tax legislation must provide a supplementary mechanism whereby cases calling for exemption or leniency may be given a very different sort of consideration than has hitherto been the case. The provision that in the most extreme cases a tax may sometimes be suspended, or remitted, as an act of clemency, has long since proved inadequate. The more recent expedient, of giving the executive branch *carte blanche*,² presents a still less adequate remedy. The administrators of the public revenues probably still fail to realize, in any country, that such measures are not opposed but conducive to the financial interests of the state. The strength of a chain is that of its weakest link; it is to the interest of whoever wishes to subject it to a great strain to eliminate the weakest links. In addition to the procedure governing tax assessments, an independent course of procedure must be organized for determining the basis of reduc-

1. The taxation of the unearned increment offers, to be sure, a problem of its own.

2. As regards the taxes numbered 7, 17, 19.

tions and exemptions; and since the German tax system presents at the present time a condition of maximum tension, it should devise the most effective means of securing adequate relief from this state of strain. This requirement represents perhaps the most important incentive for a continuation of the work of reform.

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FISHER'S "THE MAKING OF INDEX NUMBERS"¹

In an appendix to this volume Professor Fisher gives a brief list of "landmarks in the history of index numbers." In any future list, it is safe to say, an important place must be assigned to Professor Fisher's own work. Using new methods, Professor Fisher has pushed his explorations in certain directions further than any of his predecessors. He has surveyed and mapped new territories and has definitely conquered no small part of them. Even if he has not reached his objective he has come within sight of it. Debatable territory — a no man's land as yet — remains. But its area is relatively small, its boundaries are known, and the general nature of its difficult terrain is clearly indicated. In short, Professor Fisher's work on index numbers is a notable scientific achievement.

The book has the qualities of deft and finished workmanship one has come to expect in what Professor Fisher does. Painstaking care has been given to its organization, its arrangement, and its charts. Matters for the specialist are segregated in appendices. The body of the book is in the main non-mathematical, and explanations and analysis are simplified for the benefit of the "general reader." I cannot believe that this general scheme of exposition, despite the pains that have been lavished upon it, is well advised. The problems of index numbers do not and cannot attract the general reader. Their difficulties are only in small part mathematical, but they are difficulties notwithstanding — and difficulties of a peculiarly subtle and elusive sort. Doubtless it is a good general rule that analysis which does not lend itself to definite and precise expression is likely to be unsound. But

1. Irving Fisher, *The Making of Index Numbers. A Study of Their Varieties, Tests, and Reliability*. Boston and New York, Houghton Mifflin Company. 1922. Pp. xxxi, 526. (Publications of the Pollak Foundation for Economic Research, No. 1.)

simple and elementary formulations are not necessarily precise, nor are precise formulations always simple. Sometimes simplicity can be had only by glossing over real difficulties. The only readers for whom Professor Fisher need have concerned himself are specialists. By addressing himself directly to them he could have cut down the bulk of his book by a third or perhaps a half. I do not mean that Professor Fisher has not succeeded in making the body of the book intelligible to the general reader, but merely that the end hardly justifies the effort.

The more important studies of index numbers heretofore have generally been either experimental or analytical.² Not the least of the merits of Professor Fisher's work is that he avails himself of both methods, even tho he leans rather more to the empirical than to the analytical side. He proceeds by setting up several tests of the accuracy of index numbers and then by passing a long series of different types of index numbers under review, ranking them finally in accordance with their degrees of conformity with the stated tests, as well as by the ease by which they may be calculated and by other practical considerations.

Altogether Professor Fisher tests 134 different formulas, all variants, as he suggests, of six fundamental types: the arithmetic, harmonic, geometric, median, mode, and aggregative (or weighted sum). Included in this long list are substantially all the forms of index numbers that have ever been used in practice or suggested by writers on the subject. Many of the forms are novel, but most of these are developments of familiar formulas, obtained by manipulating basing years or weights. Some (not all) of these new forms — and some of the old, for that matter — are merely fanciful. The purpose, it is clear, was to make the list absolutely complete. But it is impossible for anyone really to exhaust all of the feasible forms of index numbers. In Professor Fisher's list, in fact, there are a number of surprising omissions. Most of these are to be

2. It is proper to say here that Professor Fisher's work, like other recent studies of index number construction, serves to make clear the fundamental soundness of Mr. C. M. Walsh's general analysis of the problem in his work, *The Measurement of General Exchange Value* (1901).

attributed to his preference for one type of weights, namely, sums of money or 'values' (in conventional notation, $q \times p$).

"Such values," says Professor Fisher, "afford the only common measure for comparing the streams of commodities produced, exchanged, or consumed, and afford almost the only basis of weighting which has ever been seriously proposed. If sugar is marketed to the extent of ten billion dollars' value a year, there is clearly ground for regarding sugar as twice as important as salt." Quite true, but it is the importance not of sugar and salt, but of the *prices* of sugar and salt that is in question. In their prices the quantities of sugar and salt exchanged for dollars are elements just as important as the numbers of dollars exchanged for sugar and salt. Professor Fisher insists, mistakenly I think, that an index number is always an "average of ratios" (i. e., of percentage changes of prices) rather than a "ratio of averages." Now a percentage change of a price is in itself a change of a ratio — of a rate of exchange of money for goods or goods for money. Why then in weighting should only one term of the ratio be taken into account?

Professor Fisher's practice is better than his principle, for, like everyone else, he weights aggregative index numbers with physical quantities, not with money sums. In such cases, it happens, a necessary type of weighting inheres in the form of the index number. For geometric averages and perhaps a few other special types tests of weighting in accordance with physical quantities as well as by money sums, and possibly by compromises between the two³ would have been highly desirable. Nor does Professor Fisher canvass thoroly the possibilities of the geometric with changing weights.⁴ These omissions, however, are relatively unimportant as compared with the extent of the field Professor Fisher has surveyed.

3. Such, for example, as $\sqrt{pq^2}$, or $\sqrt{q^2(1+p^2)}$

4. Unweighted, or with constant weights, the geometric is at once an average of ratios (i. e., of relative price changes) and a ratio of averages (of actual prices). With changing weights it is more obviously the latter. The weights themselves must be relative (e. g., $\frac{q}{\sum q}$ or $\frac{pq}{\sum pq}$) so that their sum for each year shall be unity.

So far as its scope is concerned, few books have so good a right to be dubbed "exhaustive."

For his tests Professor Fisher uses the prices of 36 commodities in the six years from 1913 to 1916. These price series are selected from the 1474 collected by Professor W. C. Mitchell for the War Industries Board. They are admirably adapted to the purpose because, first, the data include quantities as well as prices, and, second, because, as Professor Fisher suggests, the period covered was one of "extraordinary dispersion in the movements both of prices and quantities." Such data afford a severe test of the reliability of index numbers. It is therefore highly significant that the results given by the better formulas agree very closely. By about forty different formulas prices in 1918 were found to be between 77.3 and 78.2 per cent higher than prices in 1913. The results of the eleven formulas Professor Fisher deems best have the narrow range of between 77.63 and 77.83 per cent, and five of these give between 77.63 and 77.67 per cent. By less reliable formulas the increase in prices is reported to be as little as 67 per cent or as much as 144 per cent. Some difference of opinion may remain respecting just what, for a particular purpose, is the one best formula, for it appears that there are a number which are almost equally good. But there can be no longer any doubt that some formulas — including a few that have been commonly used — are untrustworthy. Such are the positive and extremely valuable results of Professor Fisher's work.

The practical significance of this general winnowing of the whole field of index numbers can hardly be overestimated. In the past the largest errors of index numbers have been put into them by improper methods of construction. Errors in the data have by comparison been negligible, and even errors introduced by biased selections of data have generally been of minor consequence. But now that Professor Fisher has shown that the index number may be an instrument of precision, that the *instrumental* error of the formula may be reduced to a small fraction of 1 per cent, no excuse remains for the use of any but the most accurate formulas. Just how

accurate our index numbers are should depend almost wholly upon the accuracy and the representative character of the data we use.

Before passing to Professor Fisher's criteria of a good index number it will be well to consider a criterion he rejects — the so-called "circular test." This test was suggested by Professor H. L. Westergaard, given much weight by Mr. C. M. Walsh, and accepted by Professor Fisher himself in his earlier work, *The Purchasing Power of Money*. By this test, index numbers should be *self-consistent*, that is, they should be independent of any particular base. Chain and fixed-base index numbers should give identical results. In general, if $I_{x,y}$ is the index number for the year or place x as compared with the year of place y , the following relation should hold:

$$I_{a,c} = I_{a,b} \times I_{b,c}.$$

Now I go so far with Professor Fisher as to agree that among the best index numbers are some that do not meet the circular test. I should even hold that the circular test is, in principle, inconsistent with *some* purposes for which index numbers may properly be constructed. But I believe that his conclusion that "the circular test is theoretically a mistaken one" is too sweeping, and that the analysis by which he reaches that conclusion is unsatisfactory. The essential point in his argument is that the weightings which may be appropriate as between any two years or places may not be appropriate as between either one of them and a third year or place. "If we are intent on getting the very best comparison between Norway and Egypt, we shall not go to Georgia for our weights. In the direct comparison between Norway and Egypt the weighting is, so to speak, none of Georgia's business."

This argument would be convincing if index numbers were used *only* for year-with-year or place-to-place comparisons. The fact is that for most purposes we need *series* of index numbers. First, because it is impracticable to compute separate index numbers for all possible combinations of years.

Second, because the *successive* changes of the series, its fluctuations and trend, may be the principal objects of our interest. Surely, index numbers have other purposes than that of comparing the price level of today with some *one* earlier year. The circular test must be insisted upon as an important criterion of a good series of index numbers.

In practice an index number has to serve *both* for year-with-year comparisons and as a member of a series. Our choice of formula must therefore depend upon (1) the relative importance of self-consistency in the series and of accuracy of comparison with some *one* selected year, and (2) the *degree* in which the formulas best by one test are inaccurate by the other. The second of these two considerations does not point definitely in one direction or the other. It is impossible to lay down as a general rule that the year-with-year comparisons afforded by the best of the index numbers that meet the circular test are either more or less accurate than the general comparisons-in-series derived from such index numbers as best express the change of prices as between any one year and the basing year. Much depends upon the length and general character of the period covered by the series. One thing, however, is clear. For short periods the errors of the best index numbers, one way or the other, are exceedingly small.

I agree with Professor Fisher respecting the formulas which give the best year-with-year comparisons. But I believe that in the practical construction of standard series of index numbers it is quite as important, on the whole, that the series should be self-consistent as that each number of the series should afford an impeccably accurate comparison with the base of the series.

In practice the choice resolves itself into one between constant and what Professor Fisher calls "crossed" weights.⁵

5. Professor Fisher suggests that index numbers which meet the circular test must have constant weights. That is not quite true. All averages of actual prices, including the arithmetic, harmonic, and geometric with changing weights, conform with that test. It must be confessed, however, that save for a few special purposes unadjusted averages of actual prices are not of much practical importance. Aggregative index numbers will not meet the circular test unless their weights are constant, nor in general will averages of "ratios" (i. e., of relative prices), with the single exception of the geometric, however they may be weighted.

Simplicity, ease of computation, and the availability of the necessary data are all on the side of the constant-weighted index numbers which conform to the circular test. Moreover, over short periods of time they do not differ greatly from cross-weighted or crossed-formula index numbers. Thus, using the ordinary aggregative with constant basing-year weights ($\Sigma q_{18}p_{18}/\Sigma q_{13}p_{13}$), the index number for 1918 for the prices of Professor Fisher's 36 commodities, on a 1913 base, is 177.87. Using quantities in 1918 as weights makes the index number ($\Sigma q_{18}p_{18}/\Sigma q_{13}p_{13}$) 177.43. Professor Fisher's "ideal" crossed-formula index number is the geometric mean of the two, 177.65. For practical purposes these differences are negligible.

A properly weighted geometric average would probably give results substantially as good. Professor Fisher weights the geometric, illogically I think, by "values" only. This introduces an element of biased error. He tests four different sets of constant weights, viz., $q_{18}p_{18}$, $q_{13}p_{13}$, $q_{13}p_{18}$, $q_{18}p_{13}$. The first two forms, in which prices in 1913 are elements in the weights, give results that as compared with the "ideal" are about five points too low. The other forms, in which prices in 1918 are elements in the weighting, give results that are about five points too high. The explanation is simple, altho Professor Fisher, who disposes of the matter by referring to the "dispersion of price relatives," seems to pass over it. In the first two forms weights and increases of prices are inversely correlated. In the other two forms the correlation is direct. It is probable that weighting by quantities or by some such magnitude as $\sqrt{q^2p}$ would have given better results. Using means of "values" in 1913 and 1918 as weights lessens, but, Professor Fisher thinks, does not eliminate the bias he finds in the weighted geometric, for the index number thus obtained for 1918 is 179.54, too high by about two points.⁶

6. Professor Warren M. Persons has shown empirically (in the Review of Economic Statistics, May, 1921) that the geometric average with constant (broadened-base) weights agrees very closely with the "ideal" crossed aggregative type Professor Fisher prefers. Professor Persons, interested in securing a series of index numbers that will meet the circular test, uses as weights averages of the "values" for the ten years covered by his study (i. e., $\Sigma qp + 10$). Professor Fisher, interested in year-with-year comparisons, weights his "broadened-base" geometric for 1914 by $(q_{18}p_{18} + q_{13}p_{13}) \div 2$; for

If he had used geometric rather than arithmetic means in computing his weights he would have removed, I think, substantially all bias.

Further evidence of the reliability of properly constructed index numbers with constant weights is afforded by Professor Fisher's test of the Bureau of Labor Statistics index number of wholesale prices. He finds that his ideal formula, using the Bureau's price quotations and weights, gives an index number for the year 1919 on a 1909 base that is 1.4 per cent lower than the Bureau's index number with weights computed in accordance with data for 1909, and that much higher than the Bureau's new index number in which the weighting is in accordance with data for 1919. "The adjustments needed for the intervening nine years," says Professor Fisher, "barely exceed 1 per cent in any case." These results should increase the confidence students already have in the Bureau's index number. They indicate that when simplicity and conformity to the circular test are taken into account, standard series of index numbers are best constructed as aggregatives or geometric averages with constant weights. The Bureau's practice of revising its constant weights once in ten years seems adequately to meet all reasonable requirements. For special studies of the movement of prices or of the cost of living between any two dates the crossed aggregative type is unquestionably superior. Beyond much doubt it gives the most accurate expression of the difference between the general price levels that prevail in any two years.

Professor Fisher's own criteria of the quality of index numbers are what he calls the factor-reversal and time-reversal tests. The first of these is new. It appears to be prompted by Professor Fisher's special interest in monetary problems. In a general movement of "values," i. e., of total money payments, changes both in prices and in the output of goods or

1915 by $(q_{1915} + q_{1919}) \div 2$; etc. Professor Persons observes that his investigations "point to the conclusion that the differences between Fisher's indices and the geometric average with constant weights result primarily from differences in weighting." Further, "Fisher's index is 'the best' measure of general exchange value if we desire to compare two years only, and not a series of years each with the other."

the volume of trade are at work. It is desirable to disentangle the effects of the price factor. For this purpose, we need index numbers of prices which, combined with similarly constructed⁷ index numbers of quantities, will agree with index numbers of "values," that is, of prices multiplied by quantities produced or exchanged. If P is an index number of prices, Q of physical quantities, and V of values, the condition, algebraically expressed, is:

$$P_{a,b} \times Q_{a,b} = V_{a,b} = \frac{\sum q_b p_b}{\sum q_a p_a}$$

The idea is ingenious and important. As Professor Fisher suggests, the principle involved is recognized when bank clearings or exports and imports are divided by an index number of prices in order to get a rough index of the volume of domestic or foreign trade. Ability to meet the test, it must be granted, is a quality highly desirable in an index number. But inability to meet the test *algebraically* is not, I believe, sufficient ground for discarding a formula. Probabilities, determined analytically or empirically, as well as algebra, may properly be taken into account. For example, I think it can be shown analytically that there is a high degree of *probability* that a properly weighted geometric average will agree very closely with Professor Fisher's ideal formula. And Professor Fisher's own tests show a number of cases of strikingly close agreement between index numbers which do and others which do not rigidly satisfy the test. In practice the character of the available materials may properly determine the structure of an index number.⁸ Thus where weights are not available it may be best to use the geometric average, despite the fact that *no* unweighted average meets the factor-reversal test. But the suggestion of this test is undoubtedly an important contribution to the theory of index numbers.

The time-reversal test is not altogether new, altho its

7. The only difference between the index numbers of prices and of quantities is that the p 's and q 's are interchanged.

8. Professor E. E. Day informs me that his use of an average of relatives in his index numbers of physical production was determined in part by the character of the data available as weights.

importance has too often been forgotten. It is that an index number should conform to the condition,

$$I_{a;b} \times I_{b;a} = 1.$$

That is, if an index number shows that prices were twice as high in a given year as in another, the same formula should show that prices in that other year were half as high as in the given year. All index numbers that meet the circular test conform likewise to the time-reversal test, but not all index numbers that conform to the time-reversal test will meet the circular test. In short, the time-reversal test is a part of the general circular test. Professor Fisher rejects the *whole* but makes the *part* the cornerstone of his structure of index-number theory. There is nothing illogical in this. It is wholly consistent with the emphasis he puts on securing the utmost accuracy of the statement of the movement of prices between *pairs* of years.

Closely and logically connected with the tests he prefers is Professor Fisher's discussion of bias — one of the most valuable, as well as most original, parts of his work. In recent years students of index numbers have become aware of the systematic bias inherent in certain types of index numbers,⁹ especially the arithmetic and harmonic averages of relative prices. Professor Fisher is the first to give the problem the emphasis and the thoro and systematic treatment it deserves.

Index numbers, Professor Fisher holds, are affected by two sorts of bias: type bias and weight bias. Both sorts of bias may be revealed and measured by the time-reversal test. The amount of bias in an index number that compares prices of one year with those of another is half the difference between the results obtained by taking each year in turn as the base. More accurately, the relative bias is revealed by the percentage difference between each of the two results and their geometric mean. The forms most seriously affected by type bias

9. Professor Fisher refers to Mr. C. M. Walsh's early recognition of the existence of bias (1901). He fails to note the fundamental importance of two early papers by Mr. A. W. Flux (Memoirs and Proceedings of the Manchester Literary and Philosophical Society, vol. xii, Part III, Session 1896-97; Quarterly Journal of Economics, vol. xxi, pp. 613-631, Aug., 1907).

are arithmetic and harmonic averages of relative prices. Those most affected by weight bias are geometric averages.

Weight bias, as I have already suggested, is easily explained. When the weights are "values," which contain as elements prices of the earlier of the two years compared, rising prices are relatively underweighted and falling prices relatively overweighted. When prices of the later year are elements in the weights, rising prices are relatively overweighted and falling prices relatively underweighted. Weight bias, it is important to observe, depends solely upon the character of the weighting and not upon the general type of the formula used for the index number. Professor Fisher imputes weight bias to the geometric average. It is more accurate to say that the geometric average is peculiarly sensitive to biased weighting, for the reason that its weights are exponents rather than coefficients.

There are some interesting points in the effects that biased weighting has upon arithmetic averages of relative prices. In

Professor Fisher's notation the unweighted form is $\frac{\sum \frac{p_1}{p_0}}{n}$.

Consider the effect of weighting by four different sets of "values," namely: q_0p_0 , q_1p_0 , q_0p_1 , and q_1p_1 . Using the first set of weights converts the index number into the form $\Sigma q_0p_1 / \Sigma q_0p_0$. The second set gives $\Sigma q_1p_1 / \Sigma q_1p_0$. These are the two fundamental aggregative formulas. They may be interpreted as ratios of sums of unit prices weighted by *quantities*. As we have already seen, they are among the more trustworthy index numbers. The bias in their weighting is small. The canceling of the p_0 's in the weights and in the price relatives eliminates both type bias and weight bias. Except for this fortunate algebraic conjuncture, "values" are no more imperatively indicated as weights of arithmetic than of geometric averages of relative prices. This is shown by the effects of using the other two sets of weights. The weighted index numbers are

$$\frac{\Sigma q_0p_1 \frac{p_1}{p_0}}{\Sigma q_0p_1} \text{ and } \frac{\Sigma q_1p_1 \frac{p_1}{p_0}}{\Sigma q_1p_1}$$

The second is the form employed by Palgrave in a revision of the *Economist's* figures.¹ Both formulas are unreliable, giving results which, by Professor Fisher's tests, are (for 1918 compared with 1913) about 10 points too high. The upward bias of the weighting, born of the direct correlation of the weights and the price relatives, reinforces the inherent upward bias of the arithmetic average of price relatives.

Professor Fisher assigns the two aggregative forms given above to positions 36 and 38 in the "order of merit" of the 134 formulas he tests. If he had attached any importance to the circular test, he would have been compelled to rank them closer to the top. But to the two other weighted arithmetic averages he assigns positions 104 and 106. It is clear that the arithmetic average of price relatives is a good index number only when it is so weighted that it is no longer an average of price relatives. The harmonic average of relative prices is affected by weighting in precisely the same way as the arithmetic. For it, however, "values" containing p_1 's are the appropriate weights, for the harmonic is identical with the arithmetic with the basing year reversed.

Type bias is not quite so simple as weight bias. Despite the generally illuminating character of Professor Fisher's study of type bias, his *explanation* of it seems to me to be the least satisfactory feature of his work. He attributes type bias to the conjunction of two factors: (1) bias inherent in the arithmetic and harmonic averages, and (2) the amount of the dispersion of price relatives. In my opinion the properties of the arithmetic and harmonic averages have little or nothing to do with the matter. The dispersion of price relatives is at fault, but it is the *skewness*, not the amount, of the dispersion that is significant.²

The property of the arithmetic mean which Professor

1. Cf. Walsh, *Measurement of General Exchange Value*, pp. 538, 565.

2. Professor Fisher holds (p. 408) that "In choosing the formula for an index number the skewness or asymmetry of distribution is of absolutely no consequence." The context carries the inference that he means merely that the distortion due to skewness can be got rid of by taking the mean between two averages that are distorted in opposite directions, as, for example, the arithmetic and harmonic.

Fisher finds at fault is its failure to equal the reciprocal of the arithmetic average of the reciprocals of its components. Put algebraically,

$$\frac{\sum x}{n} \times \frac{\sum \frac{1}{x}}{n} > 1.$$

Inverting the terms we get:

$$\frac{n}{\sum \frac{1}{x}} \times \frac{n}{\sum x} < 1,$$

which indicates the similar failure of the harmonic mean to live up to all the responsibilities Professor Fisher would like to put upon it. It follows that neither the unweighted arithmetic average or the unweighted harmonic average of price relatives will meet the time-reversal test. The arithmetic will have an upward and the harmonic a downward bias. But — and this is the important point — the fault must be imputed, not to the averages, but to the use of price relatives. The inequalities noted above do not, of themselves, create bias. Index numbers that completely conform to the time-reversal test may be constructed by using arithmetic or harmonic averages.

Take as components, for example, measurements of the statures of the boys entering a preparatory school. Arithmetic or harmonic averages of the measurements made in successive years will be series of index numbers of the general changes of the statures of the entering classes. The harmonic averages will be consistently smaller than the arithmetic. But each series will be consistent within itself, complying rigidly not only with the time-reversal but with the complete circular test. This fact is wholly independent of the degree or the character of the dispersion of the measurements. If the components are measurements of the same group of boys in successive years, so that a definite growth element is present, the index numbers will still remain self-consistent. And such will also be true of index numbers made up of unweighted arithmetic or harmonic averages of actual unit prices. Un-

weighted averages of actual prices, it is true, are not very reliable, but they have no "type bias."³

The bias of the arithmetic and harmonic averages is to be attributed, therefore, not to the operations indicated by the forms of those averages, but to operating in such fashion *upon price relatives*. Right here is an elementary but fundamentally important point to which Professor Fisher has given inadequate attention. Price relatives, such as p_1/p_0 , he refers to sometimes as "ratios," sometimes as "percentages." "An index number of prices," Professor Fisher holds, "shows the average percentage change of prices from one point of time to another." Or again, "An index number of the prices of a number of commodities is an average of their price relatives." Now there is a sense in which most index numbers, including the aggregative forms,⁴ are "averages of ratios"; but no good index number is definitely an average of percentages, that is, of ordinary price relatives.

Ratios, as such, are not additive (except as vectors).⁵ A percentage, or price relative, is only one of an indefinite number of arbitrary forms that a ratio may take. Adding price relatives requires that the fraction which expresses a ratio be determined by the arbitrary condition that its denominator shall equal unity. The numerator is determined in part by this arbitrary condition and in part by the true magnitude of the ratio. Let $p_1 - p_0 = \Delta p_0$; $p_1' - p_0' = \Delta p_0'$, etc., where Δp_0 , $\Delta p_0'$, etc., may be either positive or negative. Then the unweighted arithmetic average of price relatives takes the form

$$1 + \frac{\frac{1}{p} \Delta p_0 + \frac{1}{p_0'} \Delta p_0' + \dots}{n}$$

3. Professor Fisher reads such index numbers out of court because they do not meet the test of "commensurability"; that is, because they are affected by changing the units in which quantities are stated.

4. That the ratio of aggregates, $\frac{a + b + c + \dots \text{etc.}}{a_1 + b_1 + c_1 + \dots \text{etc.}}$, is a mean of (*moyenne entre*) the terms $\frac{a}{a_1}, \frac{b}{b_1}, \frac{c}{c_1}$, etc., is a theorem that dates back to Cauchy. Professor Fisher proves that it is, moreover, a true average.

5. The vector addition of ratios gives the aggregative form.

The weight given the amount of increase or decrease of any price is inversely proportional to the magnitude of that price in the base year. Such weighting brings the different amounts of change *toward*, but not *to*, a comparable basis. As soon as prices begin to move away from the base in dispersed fashion the proportions they originally bore one to another cease to obtain among them or among their amounts of change. Weighting the different series of changing prices by the reciprocals of base-year magnitudes overweights rising prices as compared with falling prices, prices that rise rapidly as compared with prices that rise slowly, and prices that fall slowly as compared with prices that fall rapidly. With the harmonic average, which utilizes the reciprocals of ordinary price relatives, the bias of the weighting is inverted.

These elementary principles account both for substantially all the systematic skewness of the distribution of price relatives,⁶ and for the bias which Professor Fisher attributes to the arithmetic and harmonic averages. Further, that it is the use of a particular form of price relatives and not the use of "ratios" that is at fault, is proved by the fact that it is possible to construct unweighted arithmetic averages of price relatives which have no systematic bias.

For this purpose the mean proportionals between prices in the two years to be compared must be taken as bases. The changes of different prices are in this manner made accurately comparable. The index number (arithmetic) for the second year as compared with the first is

$$\frac{\sum \frac{p_2}{\sqrt{p_1 p_2}}}{n} \div \frac{\sum \frac{p_1}{\sqrt{p_2 p_1}}}{n}, \text{ or } \frac{\sum \sqrt{\frac{p_2}{p_1}}}{\sum \sqrt{\frac{p_1}{p_2}}}$$

6. Professor Fisher ascribes the skewness of the dispersion of price relatives to the circumstance that "there is more room for dispersion upward." "In the downward direction they are limited by zero, while upward there is no limit." That explanation hardly goes to the roots of the matter. The range of dispersion is one thing. The distribution of dispersion within its range is quite another thing. In constructing his adjusted index of physical production, Professor E. E. Day found that the skewness of the distribution of his relatives, using the "normal" as a base, was downward. Yet there was "more room" upward.

This index number has a number of interesting properties.⁷ It meets the time-reversal (but not the circular) test. It has no systematic bias. Harmonic averages give precisely the same results as arithmetic. In general, it will agree very closely with the geometric average. If only two series of prices are used, it is identical with the geometric mean. It is probably the only defensible unweighted index number constructed by using arithmetic or harmonic averages of "relatives." In fact, for year-with-year comparisons, it seems to be the best of the unweighted index numbers.⁸ For the construction of series of unweighted index numbers the geometric average, conforming as it does to the circular test, retains its superiority.

Professor Fisher throughout seems to give rather grudging recognition to the good qualities of the geometric average. As we have seen, none of the geometrics he tests has satisfactory weights. The unweighted geometric he ranks below the median. The reason he assigns for this rather surprising judgment is that the median, by his tests, agrees just a little more closely with the "ideal" aggregative formula than the geometric does. He observes: "When we assume that simple or equal weighting is the right weighting, the order of merit would make the geometric best and the median far inferior. But, of course, simple weighting never really is the right weighting, and our table of merit is based not on simple but on true weighting." I do not find this reasoning convincing. One test is not sufficient. The degree of direct or inverse correlation of weights and prices is subject to variation, as are the various accidental circumstances that make weighted and unweighted index numbers differ. To prove his point Professor Fisher would have to show that *in general* the unweighted median will agree more closely with an accurate weighted index number than will the unweighted geometric.

7. When (after his book was in press) I sent this formula to Professor Fisher, he called my attention to its identity with the geometric mean of the ordinary arithmetic and harmonic averages of relative prices — a form he discusses and tests. Its newness, therefore, is only in its derivation.

8. Properly weighted, it takes the aggregative form, $\frac{\sqrt{q_0 q_1} P_1}{\sqrt{q_0 q_1} P_0}$.

Lacking such proof, the various unweighted index numbers must be compared as among themselves, and on that basis, as Professor Fisher says, the geometric appears to be distinctly superior to the median.

Consistently with the small importance he attaches to skewness, Professor Fisher gives no weight to the argument for the geometric average which several writers have built on the circumstance that the logarithms of price relatives are quite generally distributed with a fair approach to symmetry around their arithmetic average, that is, around the geometric average of the price relatives themselves. This argument, I think, has some significance, but it is easy to overstress it. The geometric dispersion of price relatives is really arbitrarily created by the way in which those relatives are computed. Its presence indicates merely a random distribution of rates of change.⁹ It betters the case for the geometric mean only in a negative sort of way. It rules out the common way of using the arithmetic average, which operates unimaginativeness upon price relatives as if they were solid quantities. The geometric average sees through their pretense and operates upon the real ratios lying underneath. It should be remembered that the geometric average is wholly independent of the base upon which the relatives are computed, while the character of the dispersion depends upon the base. In short, while the arithmetic (and harmonic) averages are distorted by the purely artificial skewness of the dispersion, the geometric average is not affected by it. Nor, for that matter, is the median. The character of the dispersion of actual prices in successive years has a more important bearing upon the appropriateness of the geometric average than the dispersion of relative prices has.

The most important arguments for the unweighted geometric average are based upon its general symmetry¹ and

9. It is easy to prove (altho, so far as I know, the point has escaped the attention of students of index numbers) that a random distribution of rates of change (and of changes of secondary and higher orders) will give a normal distribution of the *logarithms* of price relatives.

1. Including the points that it conforms to the circular test and that the data upon which it operates may be combined first horizontally and then vertically, or in reversed order.

upon the weaknesses of its competitors. As compared with the arithmetic mean on the mean-proportional base, its only important advantage seems to be its ability to meet the circular test. That these two averages give results that agree closely constitutes an argument for each of them.²

I have been forced to discard the view that there is a substantial difference between measuring an "average change of prices" and measuring a change of the "general level of prices."³ In a way Professor Fisher is right in holding that "all true index numbers are averages of ratios." But I should prefer to say that all true index numbers are at once averages of ratios and ratios of aggregates. This point has a bearing upon a virtue sometimes imputed to the geometric average.

That average, it is held, is in a peculiar way an appropriate average of rates of change. Now the geometric is undoubtedly a true average of ratios, that is, of rates of change, but it has no exclusive prerogative. An arithmetic or harmonic average, as we have seen, may likewise give a true result, and, except for its erratic qualities, so does the median. Care in weighting and in the details of construction are more important than the choice of one particular type of average rather than another. When properly constructed and properly weighted, averages of ratios, ratios of averages, and ratios of aggregates all come to be about the same thing. Arithmetic, harmonic, geometric, and aggregative types, weighted and used with due regard to their structural peculiarities, agree extraordinarily well in the results they give. That the harmonic average is always smaller than the geometric, and the geometric smaller than the arithmetic, does not, in general, affect the choice of an average for use in making comparisons, that is, in constructing index numbers.

The notion that the geometric average is the one proper in-

2. The most serious doubt respecting the geometric average relates to the way in which "geometric compensation" (a matter into which Mr. C. M. Walsh has probed deeply) operates when dispersion is seriously distorted. On general grounds arithmetic averaging seems to be indicated in such cases. But Professor Fisher's severe tests show only unimportant differences in the behavior of the geometric average and of the arithmetic average on the mean-proportional base.

3. This involves a modification of the program, not of the conclusions, of my paper on "The Measurement of Changes of the General Price Level," in this journal, vol. xxxv, p. 557 (August, 1921).

strument for measuring rates of change is based, I think, on two misconceptions. In the first place, it has been assumed mistakenly that an index number of "rates of change" must of necessity be an average of fixed-base price relatives — an assumption which at once gives an advantage to the geometric average. In the second place, it has been assumed, mistakenly again, that an average of rates of change must be an *unweighted* index number.

In this latter view the problem of index numbers was held merely to be a special case under the theory of errors. The movement of the "value of money" was to be ascertained by determining the most probable general or net movement of a collection of prices, the movement of each price being viewed as a single independent observation on the movement of the value of money.⁴ There are two considerations that weigh against this view. (1) The division of goods into "commodities" is more or less arbitrary. The price of each unit of every good is itself a report of an observation upon the "value of money." (2) The problem of index numbers, as Mr. C. M. Walsh has shown, does not fall in the field of the theory of errors.⁵

The truth seems to be that properly constructed averages of "rates of changes" are identical with properly-made comparisons of "general price levels" or "general purchasing power." The old Jevons-Laspeyres controversy⁶ appears to be drawing to an end, as closer approximations to the two goals indicate that they are at a common point. It is also being discovered, I believe, that, from whatever direction the common goal be approached, it is not quite attainable. A theoretically perfect index number is an impossibility.

As a practical problem, intimately related to practical questions of policy and control, the problem of index num-

4. Such, for example, was the view Cournot and Jevons took.

5. Excepting, of course, questions relating to the adequacy of the sample.

6. "It has not been clear whether index numbers really represent measures of a composite quantity, or whether they are probable estimates of the value of a single quantity formed by combining a number of independent observations towards the value of this quantity. The original Jevonian conception of an index number of the value of money was decidedly of the latter type. Modern work on the subject has been increasingly dominated by the other conception." — J. M. Keynes, *A Treatise on Probability*, p. 212.

bers is capable of a practical working solution. As a problem in pure theory, it cannot be completely solved. The difficulty is that "the average change of prices," "changes in the purchasing power of money," etc., are practical, not empirical, categories. Concrete facts do not quite fit into them. The composition of the output of goods for which money is exchanged is continually changing. The price level of today and the price level of yesterday are incommensurables. Changes of the value of money are qualitative as well as quantitative, and the qualitative changes elude our measurements. It happens, however, that qualitative changes come more slowly than the quantitative ones, so that index numbers may be made quite as precise as their practical uses can possibly demand.

Professor Fisher uses his time-reversal and factor-reversal tests as instruments for finding new formulas. When a formula does not meet the time-reversal test, it must have a "time-antithesis" with an equal but opposed bias, which will be the reciprocal of the formula with its base reversed. Thus the unweighted harmonic average of price relatives is the time antithesis of the arithmetic. The time antitheses of the geometric and of the aggregative weighted by basing-year "values" are the identical formulas weighted by stated-year values. The "factor antithesis" of a given formula is obtained by interchanging the p 's and q 's, and then dividing it into the "value ratio," $\Sigma q_1 p_1 / \Sigma q_0 p_0$. Most of the factor antitheses of standard formulas are themselves completely

new formulas. The most notable exception is $\frac{\Sigma q_1 p_1}{\Sigma q_1} \div \frac{\Sigma q_0 p_0}{\Sigma q_0}$,

which has been used in making index numbers of the prices of exports and imports. The two fundamental aggregative formulas (Laspeyres's and Paasche's) are the factor antitheses, as they are the time antitheses, of each other, and are the only formulas in which these two properties are joined.

Professor Fisher's next step is to "rectify" all of his biased formulas by "crossing" them with their respective time or factor antitheses. The rectified formulas are the geometric

means of the antithetical formulas. The time-crossed formulae all meet the time-reversal test; the factor-crossed formulae all obey the factor-reversal test. Only the "ideal" formula, compounded of the two fundamental aggregative formulas, is on both lists. So the final step is "double rectification" by time crosses of factor-crossed formulas or factor crosses of time-crossed formulas. A doubly rectified formula is thus the fourth root of the product of a fundamental formula, its time antithesis, and the factor antitheses of the two.

The book is built around the time-reversal and factor-reversal tests and the developments of them which have just been described. The whole scheme constitutes an important and unique addition to the stock of knowledge of index numbers. This new method of attack, together with his careful experimental tests, are Professor Fisher's largest contributions. Their greatest value, I think, is that they clear the field of a number of inaccurate forms and center attention upon a few trustworthy forms and a few important problems.

In view of the great importance of these contributions, it may be ungracious to suggest that Professor Fisher has wasted a good deal of labor. With uncompromising thoroughness he has put all the twenty-six formulas with which he starts through the different steps of finding time and factor antitheses, rectification, double rectification, and testing. He even goes so far as to find and rectify the factor antitheses of unweighted formulas — clearly, as he admits, an illogical proceeding, for the factor antitheses are weighted. Many of the more accurate formulas that he develops are unwieldy and impracticable. None of the rectified formulas meet the circular test. A few of them, as Professor Fisher shows, are not true averages. Moreover, altho it leads undeniably to important results, rectification by crossing is not the only possible way of developing good index numbers.

By Professor Fisher's method, when biased error is found a compensating error is created and the two errors are combined in such a way that they cancel each other. Thus the doubly-rectified formulas contain four separate elements of biased error, arranged in compensating pairs. Why introduce avoidable error? Instead of finding its double, why not elimi-

nate it? It is true, of course, that to cancel error is to eliminate it, but there is no certainty that the process will point to the nature and the sources of error, or contribute to the improvement of the general theory of index numbers. In the special case of the aggregative type, however, rectification unmistakably justifies itself by its fruits. For it points unequivocally to the "ideal" form, — the geometric mean of the two fundamental aggregative types, — which is, beyond much doubt, the most accurate single index number of the movement of prices between any two years. Its closest rival among the rectified index numbers is the doubly-rectified weighted geometric.

The use of crossed weights, that is, of weights which are means of base-year weights and stated-year weights, is a more familiar process. Professor Fisher includes a study of the possibilities of this method, but, as he explains, only "in deference to the wishes of other students of index numbers, and in order that the list shall cover all formulae previously suggested by others and all points of view." It is fortunate that Professor Fisher has allowed himself to be persuaded to take account of these cross-weighted formulas. For he finds that "crossing the weights of two formulae of the same model, and so forming a new formula, yields almost identically the same numerical results as crossing the formulae themselves." But, "formulae crossing is a universal method of compromising between two formulae, while weight crossing is of restricted importance."

Now an examination of Professor Fisher's results suggests that the difference between crossing formulas and crossing weights may be expressed in another, and, as it seems to me, more instructive way. Where the original formula contains bias due to other sources than biased weighting, formula crossing will, while weight crossing will not, eliminate the bias. Thus weight crossing cannot eliminate the bias put into arithmetic and harmonic means by the improper use of price relatives. But when the original formulas are inherently sound, weight crossing gives substantially as good results as formula crossing. Thus the crossweighted geometrics and aggregatives are excellent index numbers.

The most interesting of the cross-weighted formulas is $\frac{\sum \sqrt{q_0 q_1} p_1}{\sum \sqrt{q_0 q_1} p_0}$. This is at once (1) a cross-weighted arithmetic or harmonic on a mean-proportional base, (2) a cross-weighted cross of the arithmetic and harmonic, and (3) a cross-weighted aggregative. Professor Fisher shows, in an instructive bit of analysis,⁷ that it is probably not quite so reliable as the simpler form, $\frac{\sum (q_0 + q_1) p_1}{\sum (q_0 + q_1) p_0}$, a formula which has the approval of Professors Marshall and Edgeworth and Mr. Walsh. This formula and the "ideal" formula agree very closely in their results. Because it is simple and easily calculated, Professor Fisher recommends it, instead of the "ideal," for general use. I, for one, accept this conclusion, but with two reservations. First, where consistent series rather than the most accurate year-with-year comparisons are desired, the use of the simple aggregative $\frac{\sum q_0 p_1}{\sum q_0 p_0}$, with weights revised from time to time, is preferable. Second, there is little difference between the accuracy of aggregative and geometric types. Very frequently peculiarities of the available data will indicate that, in some particular use, the geometric should be preferred.

I do not agree with Professor Fisher at all points. For that reason I must say again that his book embodies a very high type of scientific work. It is an important contribution to knowledge, and reflects honor on American scholarship. The Pollak Foundation for Economic Research has earned the gratitude of scholars by making so laborious and expensive an undertaking possible. It is proper to add that the printers have handled a peculiarly difficult piece of typography with rare skill.

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7. But his proof that it is better to take the arithmetic than the geometric mean of the weights holds, I think, only for aggregative, not for geometric, index numbers.

REVIEWS

DIXON'S RAILROADS AND GOVERNMENT¹

THIS handy and compact volume does not purport to discuss the basic principles either of rate making or of railroad operation. It takes them for granted. What it affords, however, stated simply and clearly, is a picture of the course of events in the field of transportation during and subsequent to the war period. One always expects from this competent author a clear understanding of the basic issues, a well-balanced discussion of the controversial points, and conclusions characterized by peculiar sanity and good judgment. The mere abstract of legislation and all other purely descriptive matter may be found elsewhere; the peculiar value of the present contribution lies in the author's willingness courageously to stake his reputation upon moot points. His attitude, moreover, is always that of the spokesman for the public interest. His conclusions are not swayed either by the vehement representations of self-interested railway executives or bankers; by the biased views of the technical journals, always so chary of hurting the feelings of their clients and advertisers; or by the sometimes emotional output either of the trade unionists or of the so-called reformers. Professor Dixon rarely turns aside to discuss matters of economic theory. Nor does he often pursue his inquiries into first causes. But this volume, like his others, affords a straightforward and always reliable account of matters as they stand.

Among the controversial issues of the war period there stands forth particularly the matter of the policy of the federal Railroad Administration in the relative advance of

1. *Railroads and Government*, by Frank Haigh Dixon. New York, Scribner's Sons. 1922. Pp. 384.

freight rates and wages. The warrant for "distributing the war cost as widely as possible" through the adoption of a tax method rather than the freight-rate method, is, on the whole, accepted. Personally, in face of the floods of adverse criticism which have poured forth, I am impressed with the enormous responsibility which in these matters rested upon the shoulders of the Directors General. This was particularly true of Mr. Hines, since the President was either abroad, deeply immersed in what to him were far more important matters, or else incapacitated by sickness, throughout most of the term. And no member of the Cabinet was in position to share the burden. It is easy enough, after the event, to criticize Mr. Hines either for not having increased freight rates prior to the return to private operation, or else for having yielded to the pressure from labor for wage increases, instead of postponing that matter for decision by the carriers themselves, after the termination of federal operation. But, as Professor Dixon indicates, the conduct of the war, the stability of the government, and other general matters of profound political significance, had to be considered at every turn. On the other hand, the author is quite explicit in recognition of the political color which tinged the first period of government operation. The discussion of the economies realized, and of those greatly exaggerated for political purposes, like the savings in large salaries, is nicely balanced. It is the author's conclusion, among other things, that, on the whole, the railroads were fairly treated. "When everything is considered, the bargain must be adjudged a fair one, equitable from the standpoint of both government and carriers."

Description of the war period also calls for a decision as to the merits of the performance of the Railroad War Board. This body has been hotly defended by the railway executives, some extremists even declaring that the whole assumption of operation by the government was unnecessary. Professor Dixon frankly states that the persistence of old practices of corporate competition was so gingerly handled that it is "amazing" that the Board disregarded the approaching emergency, through failure to adopt revolutionary measures

for the relief of congestion at the Atlantic seaboard. "There could be no clearer evidence needed of the fact that coöperation in any genuine sense for war purposes was not to be accomplished under private management." The taking over by the President therefore "was not only an inevitable step, but from the standpoint of public exigency was justifiable and wise." On the maintenance controversy also (page 271) the author evidently sides with the government. He holds that, while the contract called for annual appropriations for maintenance equal to the average of the three years preceding, the additional proviso concerning changes of the price level supports the contention that proper maintenance called for "the same relative amount, character, and durability of physical reparation" as during normal times.

The discussion of valuation in relation to rate-making is particularly sane. The attacks upon the so-called "final conclusions" of the Commission, altho actually none have yet been reached, have been so vicious, added to the constant "knocking" to which the whole proposal was subjected at the outset, as to render it peculiarly refreshing to find this defense of the entire matter of valuation as a "cornerstone of our regulation policy." The author's conclusion flatly controverts an oft-repeated argument, that "there is no relation whatever between value of property and rates." He declares that this "never was true except to a limited degree." The vital distinction is made between the attempt to determine the reasonableness of an individual rate and of entire rate schedules. The author, however, fully recognizes that a most difficult question is presented in making choice as to the "final value" for each particular carrier. Assuredly it is at this point that the Commission ought to exercise the greatest care and good judgment; and for myself I am of the opinion that it may be trusted to do so. With this view, the author is evidently in accord.

In the chapters on the Transportation Act of 1920 Professor Dixon (page 244) holds the new definition of reasonable rates to be essential for the future, and not merely descriptive of preëxisting conditions already laid down by the courts.

Three reasons for this view are stated. The first is that a definite opinion as to what constitutes a fair rate of return is recorded by Congress. The second is the reaffirmation of the necessity of basing reasonable returns upon valuation; and the third is the declaration, therein contained, of the duty imposed upon the government, not merely to regulate, but constructively to create a national transportation system. "Congress has, by express grant, placed upon the shoulders of the Commission the responsibility of providing, through its rate-fixing powers, the transportation service that the public interest demands." The author's treatment of the matter of rate suspensions is peculiarly sound. He affirms the need of a speeding up of the procedure as comprehended by the amendment of the statute; but he also protests against the situation, which still in a measure obtains, of "an unjustifiable and endless stirring up of our rate structure." He approves of the Commission's proposal, not thus far acted upon by Congress, for the enactment of a statute which, as of a specified date, shall establish the existing rates and charges as just and reasonable for the past, providing at the same time that no change thereafter may be made except upon definite order of the Commission.

As to the future, the importance of integration and improvement of terminal service is repeatedly emphasized. There can be no question about the soundness of this view. It is an opinion forcibly expressed by Mr. Hines in his recent lectures at Harvard University. Attention has been too exclusively devoted to efficiency of line operation, and the weakness in the present situation obtains in the yards and terminals. Advocacy of the need of greater coöperation through consolidation is likewise expressed. I find peculiar satisfaction in the sentence, "Unnecessary and wasteful transportation can never by any process of legerdemain be made socially justifiable." The author believes in participation in management by labor as a substitute for the present "armed truce." "It was a mistake to eliminate from the Esch-Cummins Act the provision under which labor was to share in the excess earnings above six per cent." "There is no

greater source of savings today than is to be found in the development of the proprietorship spirit in the working force."

In conclusion one cannot refrain from an expression of regret that the publication of the volume might not have been postponed long enough to permit of more adequate treatment, first, of consolidation, and, secondly, of such pending issues as the Supreme Court decision in the State Rate cases. On the other hand the transportation "chapter" will probably never be so nearly completed as to permit of finality. New issues are continually arising, and history is always being freshly made. As an account of the developments up to date, the volume may be unreservedly recommended.

WILLIAM Z. RIPLEY.

WILLIAMS'S SOCIAL PSYCHOLOGY; OGBURN'S
SOCIAL CHANGE ¹

WILLIAMS'S books are the beginnings of an ambitious project — an extended and inductive treatment of social psychology in about a dozen volumes. Of the volumes now published, that on Foundations accomplishes only part of the preliminary task of pointing out psychological problems in the social sciences (more than half of this book is devoted to relations between social psychology and political science and jurisprudence) and of making some analysis of these problems. Another work is to come on relations of social psychology to the criticism of literature and art. The other, on Principles of Social Psychology, is concerned with the "conflict of interests" in economic, political, professional, family, ecclesiastical, artistic and educational relations. Three forthcoming

1. James Mickel Williams, *The Foundations of Social Science*, Knopf, 1921, pp. xvi, 494; *Principles of Social Psychology, as Developed in a Study of Economic and Social Conflict*, Knopf, 1922, pp. xii, 450.

William Fielding Ogburn, *Social Change*. B. W. Huebsch. 1922. Pp. x, 365.

volumes are, respectively on "the processes of feeling and thought through which instinctive interests are adjusted," on "the processes of personality that must be facilitated for social adjustment," and on social control. In addition to all these the author has in preparation a series on "inductive social psychology." (*Foundations*, Preface, pp. viii, ix.)

From what sort of material does the author attempt at such length inductively to reconstruct social psychology? We might expect to be led again through the doctrines of the psychological sociologists, Tarde and the rest; but, perhaps fortunately, little reference is made to these writers. We might expect a lengthy review of fundamental psychological concepts, including Loeb and his tropisms; but, less fortunately in my view, the author is content with the cruder and interactionist instinct psychology which McDougall popularized, and seems not to realize how much water has passed under the bridge since that was the best motive psychology available. His continual usage of "social-psychological" in place of plain "psychological" indicates that he does not even feel the need of the results of laboratory psychology on the mechanics of learning, pleasure-pain, intelligence, and so on, for constructing a system of social psychology. What materials, then, are used? Two sorts, chiefly, both from contemporary writing: journalistic comment on social affairs, in the *Survey*, *Nation*, *New Republic* (including numerous books in the same vein), and scientific or technical articles and books in each of the social science fields. In economics, for example, text books, monographs, books by Veblen, articles in industrial management, and works on collections and credits, all make grist for his mill. The citations are strikingly numerous and the bibliographies very large.

The constant comment on such topics as American industrial development, the recent sedition laws, various phases of the labor movement, government representation and administration, give for the moment a lively interest and concreteness to the discussion; but all this is refractory material for constructing inductively an enduring mass of principles. Apart from the probability of its losing interest as time

passes, there is the difficulty of making correct interpretations of such complex social phenomena with no objective criteria other than the wavering "dispositions." Altho the author, with good reason, frequently reminds us that we must beware of our class prejudices, he often gives cause to doubt if his own critical sense is well developed, as in his sweeping generalizations about the class struggle and (every few pages) about "reactionary capitalistic interests" or "progressive" people who are sympathetic to organized labor and restrictions on property and profits. Other difficulties are no less apparent. One, inseparable from a large synthesis of so many related fields of knowledge, is in absorbing enough of the essence of each special field to make reasonably sound judgments in it. I have already indicated that the psychological foundations of the present works seem inadequate. It may also be said that the treatment of economic topics is often so crude as to be worthless; the author's ideas lack coherence and consistency. In his chapter on "The Profit-Seeking Motive," for example, altho a considerable amount of good economic literature on profits is referred to, the vagueness of his concept of profits shows on every page. I adduce the following extracts. "In a profit-seeking system there is a general tendency to concealment of motives." "The conflict of unregulated profit-seeking with the interests of the public . . . is seen in . . . the exploitation of fertile land and the impoverishment of the soil . . . in the loaning of funds by banks for the manufacture of goods without any regard as to whether the goods are socially necessary or a social waste," as well as in monopolistic combinations and mendacious advertising. A further impression of muddiness of thought is given throughout both books, in fact, by repetitions of favorite arguments on such topics as the political influence of the "reactionary capitalistic interests," or the real significance of the labor movement.

As a whole, the work compares favorably with most of its predecessors formally devoted to social psychology; it is less literary and imaginative and closer in touch with scientific data and methods. But it will hardly win for social psychology a secure place among the sciences.

Ogburn's book is an exceptionally clear and readable attack on the old problems concerning the relative importance, in social evolution, of physical nature, human nature, and the social environment, both material and non-material. Data from psychology and anthropology, as well as from general sociology, are fitted smoothly into a coherent argument which reveals a judicial temper and a logic well sharpened by work with statistical methods.

In general the author considers variations in material culture (steam power and cities, for example) the factor of chief importance in social change, for he thinks there is little or no evidence that the biological endowment of man has changed since the ice ages. Unlike the older environmentalists, however, he thinks that within any one generation the mental traits of individuals probably vary in somewhat the same degree as do their morphological characteristics, and so he assigns a considerable rôle to men of superior ability. No use is made, however, of the recent psychological work on "intelligence," which work, tho at present difficult or impossible to interpret correctly, probably has a decided bearing on his problem. The growth of material culture is treated with special attention to social factors in invention; this and the sections on radical and conservative influences in customs will doubtless interest a number of economists.

He argues that, as technological culture develops in its *crescendo* fashion, the non-material cultural elements, such as laws, conventions, family arrangements, international relations, become increasingly difficult to readjust to the new situations. For example, it was several decades after the industrial revolution began to increase accident rates that a fairly adaptive method of protecting the workmen was found. Other evidences of maladjustments between human nature and the total social environment (maladjustments, especially, through repression of instincts) are found in nervous disorders, crime, sex problems and so on; altho here the author is careful to say that we have no proof that such maladaptations have become worse since the earliest times. Even if we are, so to speak, cave men living in cities, we are not neces-

sarily less well adapted to our total environment than when we were living in caves.

His positive suggestions for promoting better adjustment between human nature and our runaway culture emphasize recreational outlets for the inhibited impulses; neither the physiological endowment nor the aggregate of culture is thought to be appreciably amenable to conscious control. The doctrine of repression is doubtless not to be leaned on too heavily as yet, but Ogburn handles it discriminatingly. Whether or not we accept his position on this point or on the immobility of average mental capacity, we can hardly doubt that our rapidly developing civilization creates the gravest stresses within itself, threatening, indeed, its own destruction. This discussion of the fundamentals of the process clarifies our views.

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NOTES AND MEMORANDA

GROWTH IN LOCAL TAX BURDENS

IN a country which extends over a large territory and whose density of population is relatively low, local finance is bound to occupy a more prominent place than in one in which the opposite conditions prevail. General overhead expenditures for education, sanitation, health, and the like do not in all probability increase as rapidly as population. In a community, say, of a population of one thousand, a schoolhouse may be constructed which will provide educational facilities for the younger generation of these inhabitants; should the population increase to three thousand, four thousand, or five thousand, it may still not be necessary to construct a new building. It is true that the number of instructors will have to increase with the number of pupils, but the overhead involved in maintaining the schoolhouse and in defraying the annual debt charges will be more or less constant over a series of years.

In the United States, taxation of disbursing authorities other than the federal government has probably been higher than in any other country. In the fiscal year 1913-14, the tax burden imposed by local taxing authorities in this country amounted to \$15.91 per capita, compared with \$13.35 in Germany, \$9.77 in the United Kingdom, \$5.12 in France, \$4.04 in Italy, and \$1.92 in Japan. Aside from the explanation offered above with reference to this circumstance, it should be remembered that government ownership has been more extensively practiced in European countries than in the United States, with highly satisfactory results in no few cases; hence, local governments have been forced to call upon their citizens to meet current expenditures to a less ex-

tent than would otherwise have been the case. The comparatively large tax burden borne by German citizens before the war to meet local government expenditures, despite the intensive development of government-owned enterprises, is perhaps traceable to the vast social policies upon which these authorities embarked and for which Germany was noted before the war. The following table furnishes the details for the year 1913-14:

TABLE 1. DISTRIBUTION OF TOTAL TAX BURDENS, 1913-14¹

| | National government | | All other taxing authorities | | Total | |
|-----------------------|---------------------|------------|------------------------------|------------|------------|------------|
| | Amount | Per capita | Amount | Per capita | Amount | Per capita |
| | (millions) | | (millions) | | (millions) | |
| United Kingdom . . | \$799 | \$17.34 | \$451 | \$9.77 | \$1,250 | \$27.11 |
| United States | 682 | 7.02 | 1,547 | 15.91 | 2,229 | 22.93 |
| France | 680 | 17.17 | 204 | 5.12 | 884 | 22.29 |
| Germany | 403 | 5.95 | 905 | 13.35 | 1,308 | 19.30 |
| Italy | 289 | 8.12 | 144 | 4.04 | 433 | 12.16 |
| Japan | 198 | 3.69 | 103 | 1.92 | 301 | 5.61 |

As soon as the war broke out the sphere of local government activities was greatly circumscribed and local government expenditures were subjected to severe curtailment. It is evident that at a time when national governments were engaged in a battle for life or death, it was imperative that

1. Fiscal year ending in 1914, except in the case of France, for which the calendar year 1913 is taken. These figures are based on the following sources. *United Kingdom*, Statistical Abstract of the United Kingdom, 1905-19, pp. 8 ff. *United States*, Statistical Abstract of the United States, 1920, pp. 694-697; U. S. Bureau of the Census, *Wealth, Debt, and Taxation*, 1913, vol. ii, pp. 36, 37, and 462, 463, with figures estimated for minor civil divisions not included therein, on the basis of per capita growth in general tax levies of taxing authorities for which data are available. *France*, *Annuaire Statistique de France*, 36^e volume, 1919-20, pp. 156, 157, 165, 173 and 176. *Germany*, *Statistisches Jahrbuch für das deutsche Reich*, 1918, p. 66; *Vierteljahrshefte zur Statistik des deutschen Reichs*, Pt. 2, 1914, with local taxes estimated on the basis of per capita taxes in Prussia (exclusive of Berlin); *Statistische Jahrbücher für den Preussischen Staat*. *Italy*, *Annuario Statistico Italiano*, 1915, pp. 319, 320, with local taxes interpolated on the basis of *Annuario* of 1914, p. 425, and *ibid.*, 1915, p. 343. *Japan*, *Financial and Economic Annual of Japan*, 1920, pp. 38, 39, and *Résumé Statistique de l'Empire du Japon*, *Département Impérial de Recensement*, Tokyo, 1922, pp. 152 ff.

the excess of the nations' production over consumption of past or current origin be mobilized for the use of the national taxing authorities and that encroachments thereon by other authorities be reduced to the lowest possible point. All classes of citizens were called upon to make sacrifices of every kind and description and the minor civil divisions of government were also requested to fall in line.

It is only after the war that we find these stored-up demands let loose with a volume unprecedented in recent fiscal history. This movement is not confined to this country, but is to be found practically everywhere. Local taxing authorities have been increasing their impositions at such a rate as to render conditions acute. In some foreign countries and to a limited extent in the United States, this state of affairs is traceable to social burdens which have been assumed as an outgrowth of the war. Soldiers' bonuses, relief measures for unemployed and incapacitated veterans of the war, attempts at raising the standards of living for government employees which had been reduced during the course of the war, etc., account in part for this increase in local taxation. Also, public undertakings which in normal times were highly lucrative have in the majority of cases become a drain on the public treasuries, and greater and greater deficits are resulting. More particularly in this country, however, is the mercurial increase in the construction of public roads and buildings.

Let us examine some of the outstanding figures in connection with local finance in this country today. According to the United States Census Bureau, the total gross bonded indebtedness of states, counties, cities, towns, villages, school districts, etc., aggregated \$4,281 million in the fiscal year 1912-13. From the beginning of 1913 to the end of October, 1922, there have been issued \$6,519 million of long-term securities on behalf of these authorities and also \$4,169 million of short-term securities. If we assume that the latter issues, which run for a year or less, are either repaid or are converted into long-term issues at maturity, and if allowance is made for refunding and repayments, it will be found that the gross bonded indebtedness of state and local governments,

exclusive of the federal government, has increased by \$5,200 million, or approximately 120 per cent over the pre-war figure. Thus the combined gross bonded debt of state and local governments exceeds at the present time \$9,400 million. In view of the long maturities which attach to state and municipal issues, it is apparent that the annual charges on this indebtedness have been enhanced to the extent of \$450 million, inclusive of sums for amortization. In other words, the contributions from every man, woman, and child in this country for the support of state and local governments will for the next two or three decades be \$4 per annum larger than heretofore by virtue of the recent increases in public indebtedness. During the post-armistice period, each year has witnessed cumulatively larger and larger issues of state and local government securities, and the problem is becoming more and more acute with the lapse of time.

A recent survey has indicated that of the total debt of state governments outstanding early in 1922 (\$1,072 million), virtually one-half was incurred since our participation in the World War in April, 1917, and over one-third was contracted since the beginning of 1920. Construction of highways and bridges accounted for \$368 million, waterways and harbor improvements were responsible for \$214 million, and payment of soldiers' bonuses represented \$130 million.² The latter figure does not, however, give an accurate picture of the cost of state bonuses to taxpayers. While the bulk of the money involved in this wholesale largess has been raised through bonds and notes, it should be remembered that four states defrayed such expenditures directly by taxation and one state (Massachusetts) borrowed only for a short period. Up to November 15, 1922, about \$180 million of bonus securities have been sold, and it is reliably estimated that this amount plus the authorized but yet unsold issues will cost the twenty-three states that have passed upon the measure a total of \$350 million for this purpose only.³

An analysis of the purposes for which bonds have been

2. Bank of America, Survey of State Debts, New York, 1922.

3. Bond Buyer, November 25, 1922, p. 6.

issued by state and municipal governments in this country indicates a tremendous growth in expenditures for streets, roads, bridges, etc., and for funding and improvements, all of which have been financed by the sale of securities. The rise in bonds sold to finance school requirements has been especially pronounced in the past three years and bids fair to continue for a long while in the future, as may be observed from the subjoined table:

TABLE 2. — PURPOSE OF STATE AND MUNICIPAL BOND ISSUES ⁴

(millions)

| Year | Refunding | Water | Streets, roads, bridges, etc. | Sewers | Schools | Buildings | Parks | Light and gas | Funding and improvement | Miscellaneous | Total ⁵ |
|------|-----------|-------|-------------------------------|--------|---------|-----------|-------|---------------|-------------------------|------------------|--------------------|
| 1910 | \$19 | \$55 | \$66 | \$28 | \$41 | \$34 | \$5 | \$2 | \$12 | \$57 | \$320 |
| 1911 | 18 | 75 | 88 | 34 | 47 | 38 | 17 | 3 | 18 | 58 | 397 |
| 1912 | 16 | 60 | 89 | 26 | 46 | 31 | 13 | 8 | 15 | 81 | 387 |
| 1913 | 27 | 49 | 108 | 26 | 55 | 42 | 9 | 3 | 20 | 63 | 403 |
| 1914 | 9 | 57 | 147 | 33 | 63 | 44 | 8 | 4 | 16 | 95 | 474 |
| 1915 | 32 | 44 | 136 | 31 | 80 | 33 | 10 | 8 | 25 | 98 | 499 |
| 1916 | 23 | 39 | 142 | 23 | 70 | 28 | 9 | 3 | 18 | 101 | 457 |
| 1917 | 15 | 28 | 131 | 33 | 60 | 26 | 11 | 7 | 22 | 118 | 451 |
| 1918 | 10 | 39 | 64 | 34 | 40 | 12 | 2 | 4 | 25 | 67 | 297 |
| 1919 | 13 | 55 | 296 | 39 | 103 | 25 | 8 | 10 | 48 | 94 | 692 |
| 1920 | 11 | 54 | 216 | 40 | 130 | 25 | 18 | 12 | 50 | 144 ⁶ | 683 |
| 1921 | 9 | 80 | 393 | 73 | 217 | 42 | 22 | 14 | 96 | 262 ⁷ | 1209 |

That this country has spent enormous sums on road building, which have been defrayed either by taxation or bond issues, is apparent from a study of developments year by year. From 1910 to 1921, both inclusive, expenditures for construction of roads have aggregated \$2,526 million.⁸ In 1921 alone, this item was placed at \$600 million, defrayed principally as follows: federal aid, 14 per cent; state road bonds, 7 per cent; state taxes, 12 per cent; county, township and district taxes and assessments, 14 per cent; and motor

4. Compiled from the Commercial and Financial Chronicle, New York City.

5. These figures differ radically in later years from those compiled by the Bond Buyer.

6. Includes soldier bonus, \$18 million.

7. Includes soldier bonus, \$168 million.

8. Ibid., June 17, 1922, p. 4.

vehicle revenue, 19 per cent. Figures for recent years are here appended, in so far as data are available:

TABLE 3. TOTAL CASH EXPENDITURES ON PUBLIC ROADS ^a

| Year | Amount (millions) |
|------------|-------------------|
| 1904 | 59.6 |
| 1914 | 240.3 |
| 1916 | 272.7 |
| 1917 | 280.0 |
| 1918 | 286.2 |
| 1919 | 389.5 |
| 1921 | 600.0 |

Along with the growth of bonded indebtedness there has been a continued increase in tax burdens for the support of local governments which has assumed alarming proportions. In Pennsylvania, the total amount of taxes levied by county and local governments has grown from \$99 million in 1912 to \$145 million in 1919, \$170 million in 1920, \$198 million in 1921, and \$235 million in 1922. In New York, the total of general property taxes levied by local governments has grown from \$214 million in 1912 to \$315 million in 1919, \$347 million in 1920, and \$407 million in 1921. In California, the growth has been from \$65 million in 1912 to \$97 million in 1919, \$120 million in 1920, and \$158 million in 1921. In Massachusetts local tax levies have more than doubled from 1912 to 1921. For thirty-four states reporting figures for 1912 to 1921, the increase in local government taxes has been 78 per cent from 1912 to 1919; the gain from 1919 to 1920 was 22 per cent and from 1920 to 1921, 12 per cent. Examination of 1922 figures for a limited number of states indicates that there has been no material cessation in this movement.

In the following table the growth of general property tax levies of local governments is indicated for recent years:

^a Statistical Abstract of the United States, 1921, p. 353, and the Bond Buyer (New York), July 29, 1922, p. 3.

TABLE 4. GENERAL PROPERTY TAX LEVIES OF LOCAL GOVERNMENTS¹

| | (millions) | | | |
|----------------------------------|------------|-------|--------|--------|
| | 1912 | 1919 | 1920 | 1921 |
| Arizona | \$3.1 | \$8.5 | \$11.2 | \$11.4 |
| California ² | 65.4 | 96.8 | 120.2 | 157.8 |
| Colorado | 15.1 | 28.1 | 33.9 | .... |
| Connecticut | 16.3 | 37.0 | .... | .... |
| District of Columbia . | 6.1 | 8.9 | 9.5 | 12.6 |
| Florida ³ | 4.5 | 10.2 | 11.5 | 12.6 |
| Idaho | 5.9 | 13.6 | 17.3 | 18.1 |
| Illinois ⁴ | 84.6 | 173.5 | 196.5 | .... |
| Indiana | 39.1 | 60.1 | 64.8 | 103.5 |
| Iowa | 33.7 | 71.5 | 87.9 | 94.2 |
| Kansas | 24.4 | 49.6 | 62.6 | 67.5 |
| Kentucky ⁵ | 5.3 | 10.5 | 12.7 | 14.9 |
| Louisiana ⁵ | 9.3 | 23.8 | 31.1 | 32.5 |
| Maine | 7.2 | 11.7 | 15.9 | 17.2 |
| Maryland ⁵ | 13.5 | 22.0 | 31.3 | 33.6 |
| Massachusetts ⁴ | 68.3 | 105.4 | 128.1 | 138.7 |
| Michigan | 37.8 | 93.3 | 123.1 | 137.9 |
| Minnesota | 32.6 | 78.2 | 99.1 | 99.3 |
| Missouri ⁵ | 26.8 | 44.3 | 51.0 | .... |
| Montana | 8.9 | 21.1 | 24.1 | 25.2 |
| Nevada | 1.7 | 3.0 | 3.5 | 3.8 |
| New Hampshire ⁴ | 5.3 | 10.3 | 10.5 | 12.7 |
| New Jersey | 39.1 | 75.1 | 95.3 | 107.7 |
| New Mexico | 2.4 | 7.0 | .... | .... |
| New York | 214.1 | 315.3 | 346.9 | 406.6 |
| North Carolina ⁵ | 6.1 | 17.0 | .... | .... |
| North Dakota | 10.0 | 24.5 | 27.0 | 26.8 |
| Ohio | 69.7 | 141.1 | 200.1 | 210.6 |
| Oregon | 16.2 | 22.7 | 28.3 | 31.6 |
| Pennsylvania ² | 99.4 | 145.3 | 169.8 | 197.9 |
| Rhode Island | 7.4 | 12.4 | 16.1 | 16.7 |
| South Carolina ⁵ | 3.6 | 8.5 | 12.5 | 12.8 |
| South Dakota | 9.3 | 23.8 | 31.5 | 29.8 |
| Tennessee ⁵ | 6.2 | 12.2 | 15.8 | 17.6 |
| Texas ⁵ | 11.0 | 22.5 | 24.6 | .... |
| Utah | 5.0 | 9.7 | 13.7 | 14.1 |
| Vermont | 3.8 | 5.4 | 7.4 | 8.1 |
| Washington | 25.3 | 49.5 | 55.0 | 50.9 |
| West Virginia | 10.0 | 26.7 | 32.2 | 34.9 |
| Wisconsin | 31.1 | 70.0 | 88.5 | 89.4 |
| Wyoming ⁵ | 1.8 | 4.6 | 5.5 | 7.3 |

1. Taken from Research Report No. 55, "Taxation and National Income," published by the National Industrial Conference Board, New York City and prepared by the present writer. 2. Collections as reported by tax officials, including licenses.

3. Counties only. 4. Includes a few miscellaneous taxes, in addition to general property tax, as for polls, dogs, bees, etc. 5. Counties and schools only. Capitation taxes and miscellaneous licenses included in some cases.

SUMMARY OF TABLE 4

States reporting figures, 1912-21:

| | |
|------------------------------------|---------|
| Number | 34 |
| Increase, 1919 over 1912 | 78.0 % |
| Increase, 1920 over 1919 | 22.1 % |
| Increase, 1921 over 1920 | 12.3 % |
| Increase, 1921 over 1912 | 144.2 % |

States reporting figures, 1912-20:

| | |
|------------------------------------|---------|
| Number | 38 |
| Increase, 1919 over 1912 | 80.3 % |
| Increase, 1920 over 1919 | 21.0 % |
| Increase, 1920 over 1912 | 118.2 % |

States reporting figures, 1912-19:

| | |
|------------------------------------|--------|
| Number | 41 |
| Increase, 1919 over 1912 | 82.1 % |

While the receipts from federal taxation have been declining, the increase in taxes levied by state and local governments have grown so rapidly as to more than counterbalance this amelioration, and the result has been that the nation's tax bill is today larger in terms of dollars than heretofore. In 1903 the total tax bill amounted to \$1,382 million or 6.7 per cent of the national income; in 1913 the total taxes paid by citizens of this country had risen to \$2,194 million, but national income had grown more rapidly with the result that taxes represented only 6.4 per cent of the national income. This is a phenomenon that was plainly visible in the century preceding the outbreak of the war. The tendency had been for productivity and national income to grow more rapidly than the requirements for the support of government. The war interfered very seriously with this tendency. In 1919 we find the total tax bill standing at \$8,034 million, which represented 12.1 per cent of that year's national income; in 1921 we find, however, that while the total taxes had risen to \$8,363 million, the diminution in the national income was so appreciable that the burden of taxation represented more than one-sixth of national income. While state and local government taxes represented 69.5 per cent of total taxation

in 1913, this proportion had fallen off to 36.9 per cent in 1919 but increased to 47 per cent in 1921.⁶

A perusal of the facts presented above raises the query whether the policy that is being pursued is a wise one. This enormous expansion in local governmental expenditures cannot continue much longer without permanently impairing our national economy. Energetic action is called for with a view of placing the damper on public profligacy and reducing the outgo to proportions that are more in line with the industrial and general economic status of the community at large. While the particular objects for which disbursements are being made may be admitted to be on the whole useful and laudable, it is nevertheless clear that we are overextending ourselves and that we are bound soon to create such deplorable conditions as exist in the state of Arkansas, where special assessments for roads in some cases are said to have exceeded the assessed values of the properties affected. The time is propitious for a careful examination of the whole question with a view of securing the coöperation of public bodies in lowering the tax burden, increasing governmental efficiency and enhancing public welfare.

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6. National Industrial Conference Board, Research Report No. 55, Taxation and National Income, October, 1922, prepared by the present writer.

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